Pharmacy

DRUG & COSMETIC INDUSTRY

NOVEMBER 1959

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Laboratory Data Sheet

ROCHE

l-ASCORBIC ACID, U.S.P.
COATED *l*-ASCORBIC ACID—97.5%
SODIUM *l*-ASCORBATE

VITAMIN C

- The first to achieve commercial production of vitamin C by the famous Reichstein synthesis.
- Roche produces every useful type of *l*-ascorbic acid to meet virtually every manufacturing need.
- Single uniform lots as high as 3000 kilos, saving you assay costs.
- All types are uniform, readily soluble and easy to handle.
- Roche guarantees highest quality, held to rigid specifications.
- Quick delivery from strategically located warehouses.
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l-ASCORBIC ACID, U.S.P. 'Roche'

TYPES	DESCRIPTION AND USES
GRANULAR TYPE 20-60	100% (±) passes through 20 mesh. 95% is retained on 60 mesh. Similar to granulated sugar in particle size. Satisfactory for direct addition to dried granulations.
FINE GRANULAR TYPE 40-80	100% (±) passes through 40 mesh. 95% is retained on 80 mesh. A free-flowing product similar to table salt in particle size. Recommended for tablet granulations where fine powder is considered less suitable because of denser packing.
SUPERFINE GRANULAR TYPE 60-100	100% (±) passes through 60 mesh. Approximately 25% remains on 100 mesh. 45-50% passes through 100 mesh and remains on 200 mesh. 25-35% passes through 200 mesh. A very fine free-flowing crystal suitable for dry gelatin capsules or tableting. Useful in dry mixtures, food supplements.
FINE POWDER TYPE 100	100% (±) passes through 100 mesh. Produced by grinding crystalline material. Non-abrasive on tableting dies. Widely used for granulations, solutions, food supplements. Minimizes fractionation of particles in dry mixtures.
ULTRA FINE (MICRO) POWDER TYPE 325	Minimum 99% through 100 mesh. Minimum 90% through 200 mesh. Milled extremely fine. Practically devoid of abrasive action on cutting dies. Screen tests above 200 mesh are unreliable because of variations in technique, equipment, humidity, static charges, etc. Sedimentation tests and measurement of particle size in microns reveal that 60-70% of Roche material is smaller than 44 microns (equivalent to 325 mesh).
AMPUL TYPE	Very fine crystals—easily dissolved. Minimum color. Specially produced and tested for use in parenteral solutions. See Roche technical brochure "Notes on Vitamin B_1 and Vitamin C Parenteral Solutions" for complete details.
TYPE F	Especially produced for use in the food industry. Free-flowing, will not dust or clump, dissolves easily. U.S.P. in quality. 100% through 50 mesh. 98-99% remains on 200 mesh.

COATED *l*-ASCORBIC ACID—97.5% 'Roche'

DESCRIPTION

Coated ascorbic acid 97.5% 'Roche' is a fine, white, or nearly white powder. It is pure U.S.P. ascorbic acid powder coated with ethyl cellulose. The manufacture of coated ascorbic acid is licensed under Patent No. 2,410,417 to Roche and customers of Roche.

SPECIFICATIONS

Particle Size	100% through 16 mesh screen 75-92% through 40 mesh screen 45-80% through 60 mesh screen 35-60% through 100 mesh screen
Assay	Minimum 97.5% *l*-ascorbic acid
Identity test	Positive for *l*-ascorbic acid
Loss on drying	Negligible

USES AND DATA

Ethyl cellulose coated ascorbic acid 'Roche' has these advantages in pharmaceutical tablet manufacture:

- Small size, high potency (250-500 milligrams) tablets of light color can be made from dry granulations with very little excipient.
- Aids in eliminating chipping and capping during compression.
- Retards discoloration, mottling during abnormal storage conditions.
- Reduces contact of ascorbic acid with reactive materials.
- Rapidly available in aqueous solution for assay.
- Provides a tablet with slower release of ascorbic acid, tending to reduce localized acidity sometimes experienced with high potency tablets.

FOOD MANUFACTURERS

- Manufacturers of cured meats can use this type to advantage for retarding smokehouse activity, and for better protection in spice mixtures. It may also provide longer protection of color and flavor during storage and display.

DATA ON PARTICLE FINENESS

Based on U.S.P. XV pages 934-5; N.F. 10, pages 702-3, *Langes Handbook of Chemistry 9th Edition, page 911

The fineness of "powders" is described in both the U.S. Pharmacopeia and National Formulary in terms which are related to the number assigned to a standard sieve made of woven wire cloth. The size of wire, and sieve opening are standardized together with permissible variation in both average and maximum openings.

Sieve Number	Sieve Opening in Microns	Sieve Opening Mm.	Permissible Variation in Average Opening Per Cent	Permissible Variation in Maximum Opening Per Cent	Wire Diameter Mm.
50	297	0.297	± 5	± 25	0.170-0.253
100	149	0.149	± 6	± 40	0.096-0.125
200	74	0.074	± 7	± 60	0.045-0.061
*325	44	0.044	± 5	± 60	0.036

Standards are established for defining the fineness of powdered chemicals, together with a technique for determining the uniformity of fineness. The types of powders described in the U.S. Pharmacopeia and National Formulary do not represent the full range of particle sizes commercially available. No procedure is given for the determination of particle size in the "ultra-fine" or "micro powder" range, sometimes referred to as No. 325. This requires a sedimentation method and measurement in microns. Ordinary sieving methods are inaccurate.

The variation possible in the standard sieves plus such variables as the motion applied to the screen and physical characteristics of the powder being screened affect accuracy and duplicability of screening tests. Particle size specifications based on mesh sizes must always be regarded as nominal rather than as strictly accurate limits of particle size and distribution.

SODIUM *l*-ASCORBATE** 'Roche'

This is the sodium salt of *l*-ascorbic acid. It is available as an odorless, tasteless, anhydrous, fine white powder or fine granular substance.

The antiscorbutic activity is in molecular proportion to *l*-ascorbic acid, one milligram of the sodium salt being equivalent to 0.889 milligram of the acid, or one milligram of the acid equivalent to 1.124 milligrams of sodium *l*-ascorbate.

Highly soluble in water—62 grams/100 ml at 25°C, 78 grams/100 ml at 75°C. Aqueous solutions are unstabile, easily oxidized on exposure to air, or other factors which affect *l*-ascorbic acid.

The pH of a sodium *l*-ascorbate solution is from 5.6 to 7.+ as compared with a pure *l*-ascorbic acid solution at pH 2.3-2.5. The more neutral characteristic of the sodium salt recommends it for high dosage oral forms where gastric sensitivity to lower pH might be undesirable. It is useful in combination with ingredients which would react unfavorably under more acid conditions. Products can be buffered to a suitable pH by combining sodium *l*-ascorbate and ascorbic acid together.

Commercial forms of sodium *l*-ascorbate are not recommended for preparation of parenteral solutions. It is more satisfactory to prepare suitably buffered solutions of 'Roche' ampul type *l*-ascorbic acid, using sodium bicarbonate according to the special Roche method described in our technical brochure, "Notes on Vitamin B_1 and Vitamin C Parenteral Solutions."

Sodium *l*-ascorbate is of value as an antioxidant for use in comminuted meats and in curing pickles for hams, bacon, and corned beef. Because it is the salt of *l*-ascorbic acid (vitamin C), a substance naturally occurring in meats and identified in the U.S. Pharmacopeia, it may be preferred to antioxidants in the "chemical additive" class.

THESE PRODUCTS ARE FOR ANTIOXIDANT USE ONLY. IF USED IN FOOD PRODUCTS, NO CLAIM FOR NUTRITIONAL VALUE CAN BE MADE.

**Sodium d-isoascorbate, 'Roche', antioxidant with virtually no vitamin C activity. A white, free-flowing crystalline material. Slightly less soluble than *l*-ascorbic compounds. When replacing *l*-ascorbic acid, 23% more should be used to obtain equal antioxidant activity and 8% more when replacing sodium *l*-ascorbate. These differences are due to the presence of both sodium and water of crystallization which are inactive. Literature on request.

d-Isoascorbic acid 'Roche'—antioxidant. Similar to sodium d-isoascorbate described above. Useful where acid reaction or absence of sodium is desirable. For equivalent antioxidant activity use 23% less than with sodium d-isoascorbate, or the same amount as with *l*-ascorbic acid (vitamin C).

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(Reprints available)

Drug and Cosmetic Industry

Contents November 1959 Vol. 85 No. 5

Cover by Ken Rossi

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Drug & Cosmetic Industry is published monthly by Drug Markets, Inc., Frazer V. Sinclair, President and Treasurer; Thomas R. Farrell, Vice-president and Secretary. Editorial and General Office: 101 West 31st St., New York 1, N. Y., U. S. A. Publication Address: Sun Printing Corp., 28 Renne Ave., Pittsfield, Mass., U. S. A.

Business Manager, Frazer V. Sinclair; Advertising Manager, P. W. Alexander; Advertising Representatives, Walter M. Brauneiss, C. R. Keeley; Production Manager, Katherine Hyde; Circulation Manager, Harry G. Kelbly.

Midwestern Advertising Representative: Dwight Early and Sons, 100 No. LaSalle St., Chicago 2, Telephone, CEntral 6-2184.

Subscription price $3.00 a year, in advance. Foreign Countries, $5.00. Single copies, 35c; Back issues 50c. Entered as Second Class Matter, January 1, 1928 at the Post Office at Pittsfield. Mass., under the Act of March 3, 1879. Member of Audit Bureau of Circulation.

Contents Copyrighted 1959 by Drug Markets, Inc.

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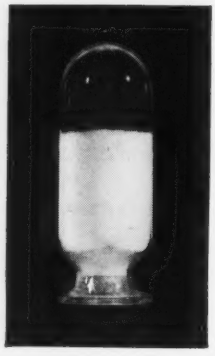

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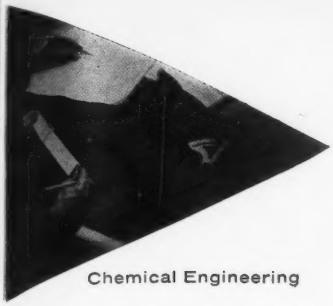
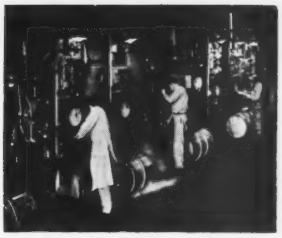


Chemical Engineering

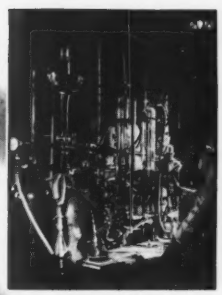
Quality Control



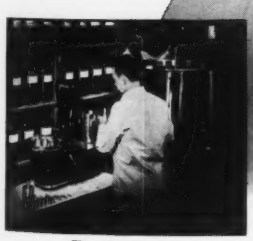
Chemical Manufacturing

Perfume
Evaluation Board

Sales



Aromatic
Chemical Research



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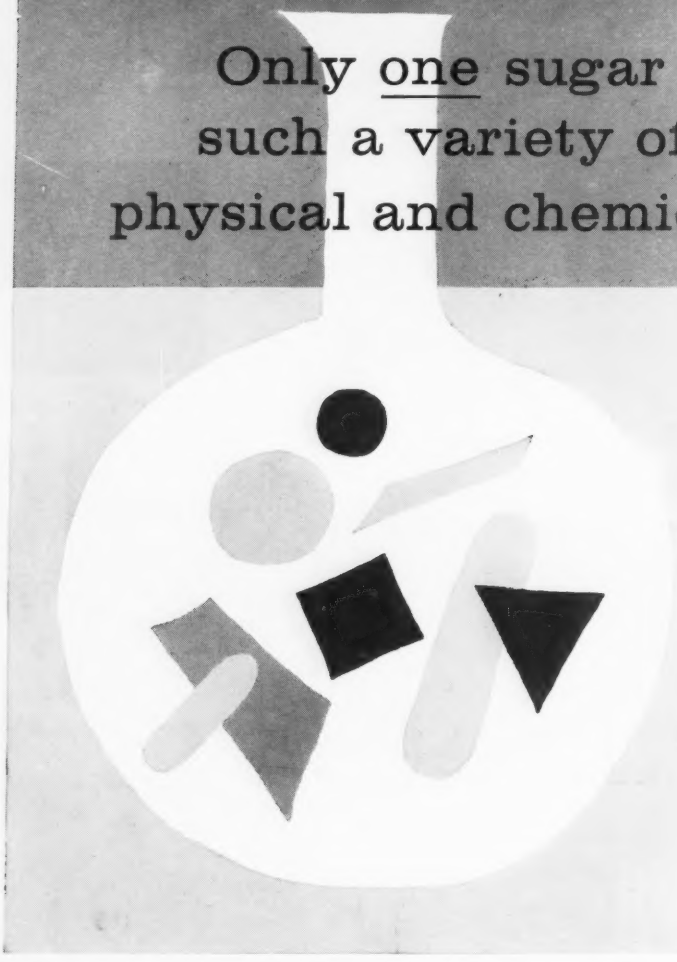

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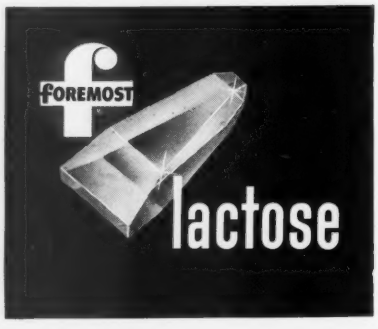

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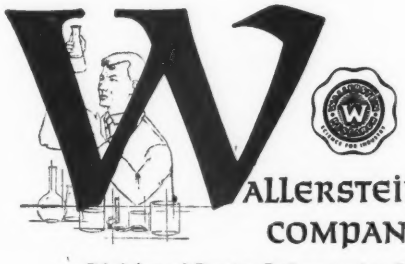

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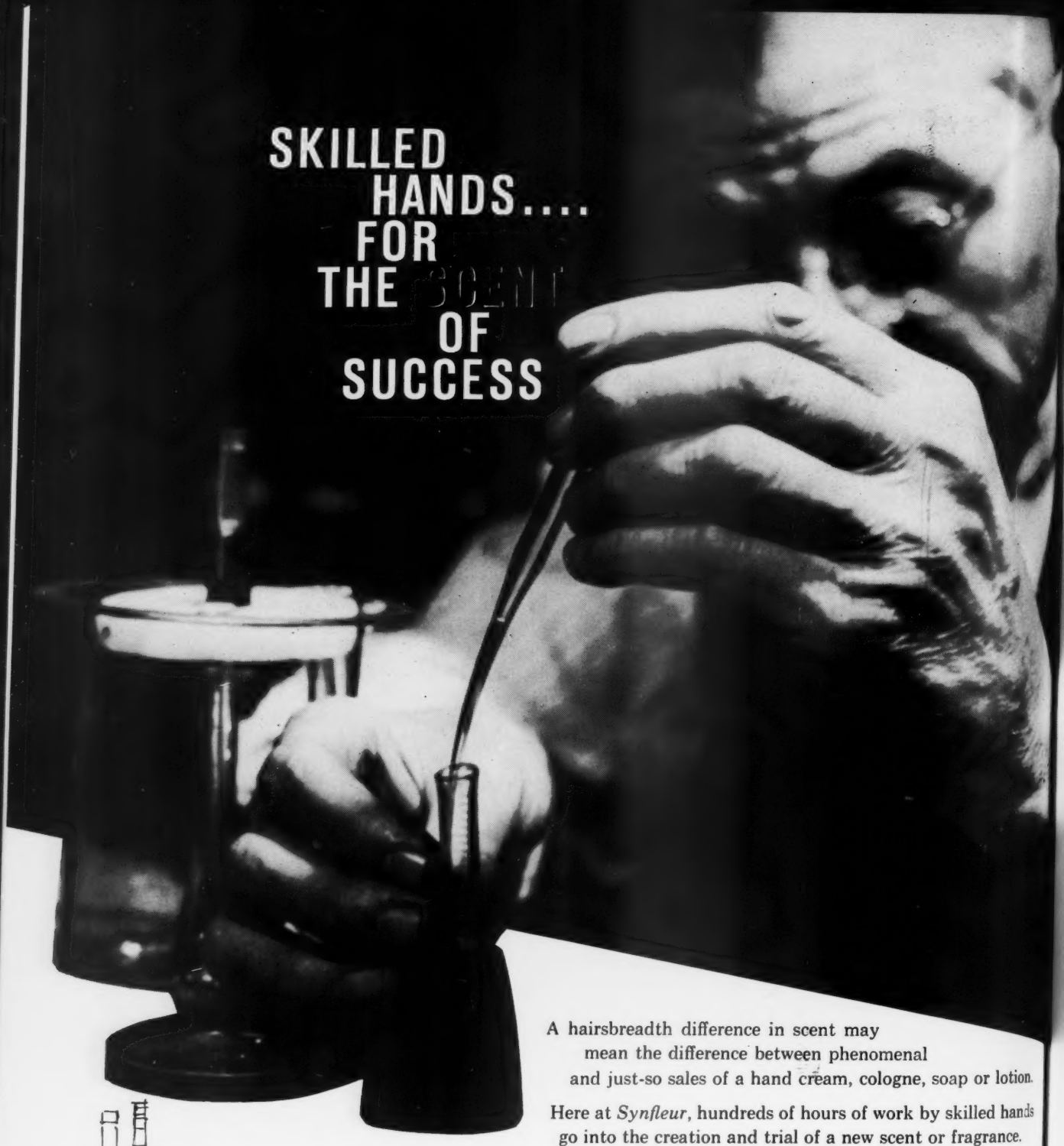

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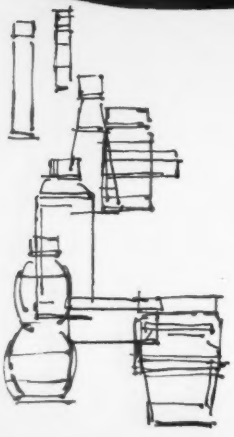

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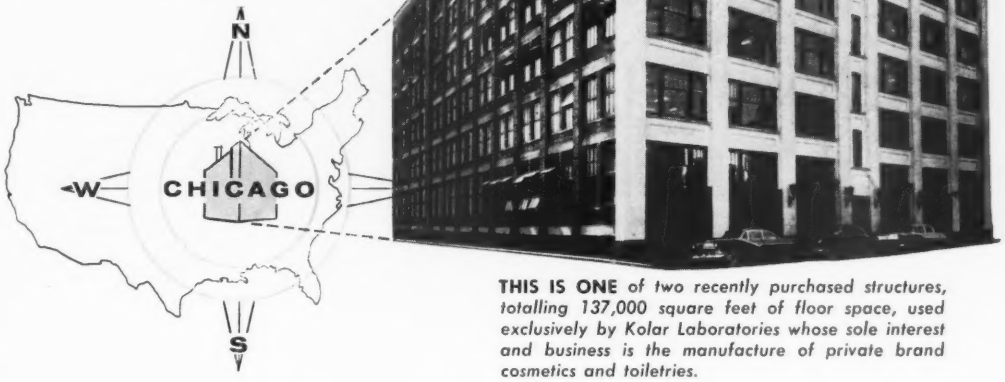

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With the cost-profit squeeze catching all companies in its vicious pressure, a closer scrutiny of suppliers and their raw materials is demanded. With labor, selling and production costs spiraling—and with the end not yet in sight—examination of raw materials becomes of prime importance. Dow, basic in production of hundreds of pharmaceutical and medicinal intermediates, reports on seven products that may help cut down on production overhead.

You may wish to check certain items in this advertisement and forward to those concerned in your company.

ROUTE TO:

_____

_____

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GLYCINE CHANGES PERSONALITY— FROM ADDITIVE TO INTERMEDIATE

Usually thought of as an additive, Glycine has been used by certain companies as an intermediate . . . with very satisfying results. Dow also announces a vast improvement in the white color of Glycine. These factors indicate a decided personality change that profit-minded pharmaceutical men are taking a second look at.

The old adage, "Seeing is believing", is being applied to Dow's improved glycine. Users report Dow's Glycine to be the whitest material to date. Dow's invitation: Try a sample. It might surprise even the men from Missouri.

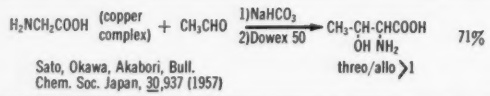
Significant advancements also seem to be in the wind regarding use of glycine as an intermediate. It could be for any one or a combination of three reasons.

(1) Versatility.
(2) Least expensive amino acid
(3) Most reactive amino acid per unit weight.

Processors are reluctant to spell out why or how they are using glycine as an intermediate. However, listed below are some typical reactions that might point the way to more profitable uses of this fast-moving chemical.

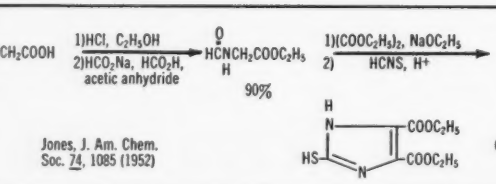
NOTEWORTHY REACTIONS OF GLYCINE

1.



Sato, Okawa, Akabori, Bull. Chem. Soc. Japan, 30,937 (1957)

2.



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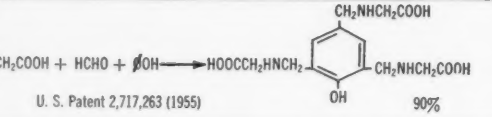

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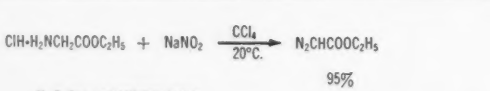

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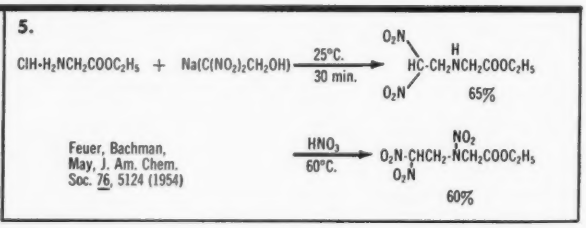

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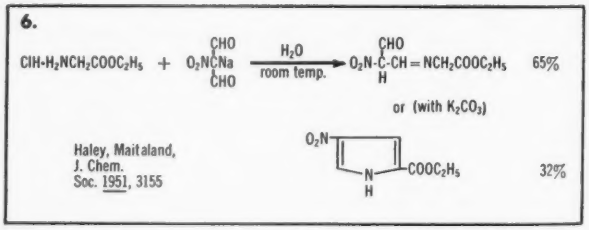

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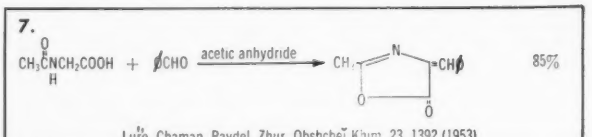

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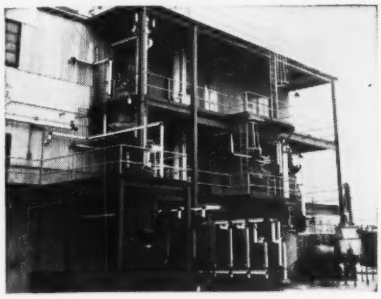
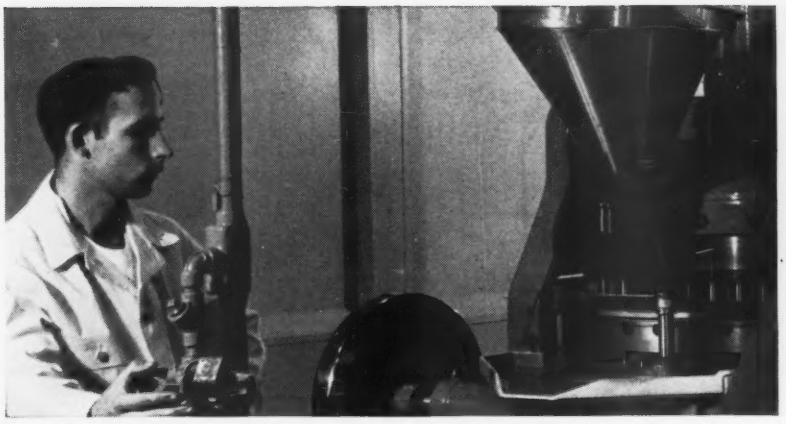
AMINO ACID EXPERIENCE *always available*

Another equally fascinating chemical area is the amino acid family. For many years Dow has synthesized the essential as well as the nonessential amino acids both in developmental and commercial quantities. From time to time, some of these products have played important roles in helping alert drug companies to better their products.



This multi-purpose plant is used for production quantities of specialized amino acids.

Dow continues to have an active interest in the future of these important products. Research activity continually seeks new answers which can help improve existing products, stimulate new products and do it more economically. Dow is vitally interested in hearing from anyone concerned with this highly specialized area of activity.



Improved production assures high quality and unsurpassed uniformity of acetophenetidin.

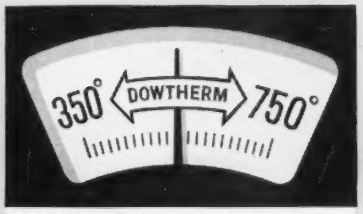
DOW'S ACETOPHENETIDIN *helps end production pains*

Dow is rightly proud of the fine crystalline structure of its acetophenetidin. This particular property has been instrumental time and again in minimizing caking and blocking problems in fast moving production situations. In slugging operations as well as processes of the wet granulation type, Dow acetophenetidin offers the easiest and quickest way to prepare your product in tablet, capsule or powdered form.

Through the years, Dow research has sought the improvement of this product, and quality control standards demand exacting uniformity. This important analgesic is immediately available from any of the many stock points located throughout the country.

In addition to the chemicals reported on in this advertisement, Dow makes literally hundreds of others of economic importance to the pharmaceutical industry. For further information contact THE DOW CHEMICAL COMPANY, Midland, Michigan, Chemicals Merchandising Department 960AW 11.

4 Fast Chemical Profiles to Note



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DOWICIDE® PRODUCTS—If your pharmaceutical product is subject to attack by bacteria or fungi, think of the Dowicide Products. These preservatives have been used successfully in scores of products, and their qualities of preservation are outstanding.

ACETYLSALICYLIC ACID — Available in crystal, powder or granular form, Dow's acetylsalicylic acid is shipped from terminals all over the U.S. Dow is one of the world's major producers, so you can depend on a sure source of supply.

ION EXCHANGE RESINS—These interesting resins are being investigated and used in greater volume every year. Under the trademark Dowex®, Dow produces an entire family of ion exchange resins, many designed for special applications.

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has an editorial board which represents highly respected medical opinion—the kind of editorial content progressive physicians are willing to pay for. Here is cover-to-cover reading by men in medicine who really matter.

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OFFICIAL PUBLICATION OF THE AMERICAN THERAPEUTIC SOCIETY

Bimonthly beginning January 1960

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New POLYOX water-soluble resins give toiletries that creamy-smooth feel

POLYOX resins add a pleasing lubricity to facial and hand creams . . . brushless shaving creams . . . lotions and other toiletries. In toothpastes, they give a desirable "mouth feel."

You can choose from a wide range of viscosities with POLYOX resins. In three grades, they have molecular weights ranging from several hundred thousand to over six million. Truckload quantities of POLYOX resins are available *now*—as are samples for laboratory projects and evaluation.

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DRUG & COSMETIC CATALOG 1960-61 EDITION

The only comprehensive reference book published biennially exclusively for the Drug & Cosmetic Manufacturers over the past 29 years. New edition will be published in the spring of 1960.

What's in it?

Alphabetic lists in separate sections giving SOURCES OF SUPPLY FOR ALL RAW MATERIALS, MACHINERY, PACKAGES AND PACKAGING MATERIALS USED BY OUR INTER-RELATED FIELDS.

AEROSOL SECTION listing all contract fillers and sources of supply for all ingredients and machinery for the production of Aerosol packages.

Indices listing TRADE MARKS, TRADE ASSOCIATIONS and TRADE PUBLICATIONS.

A list of all PRIVATE FORMULA houses.

LEGAL SECTIONS AND STATISTICAL INFORMATION showing import and price movements on all raw materials for 10 years past.

What markets are served?

COSMETIC: Over 900 companies manufacturing perfumes, cosmetics, toilet preparations and similar products. These include certain wholesalers and chain stores not primarily associated with the industry but who are manufacturing products for this group.

DRUGS: ETHICAL AND PROPRIETARY—A 3½ billion dollar industry showing one of the most phenomenal growth patterns in American industry.

ASSOCIATED COMPANIES: Subsidiaries or divisions of companies in other industries participating and using raw materials, packages, machinery and equipment of this industry.

The DRUG & COSMETIC CATALOG has a separate section for every phase of the manufacture of drugs and cosmetics. Each section is alphabetized for quick and ready reference use.

It is invaluable in locating and selecting suppliers of basic materials for established or new products, and is the most complete and comprehensive summary published for this industry.

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Recent developments of the Verley Laboratories enable us to offer a new line of MOS products which are highly soluble in mineral oil without filtering and with no precipitation. The interesting part of this development is that no additives are needed to aid solubility, and the percentage which can be incorporated in a product is amazingly high. This in our opinion, will enable consumers to overcome previous difficulties and aid in a new concept in the use of mineral oil.

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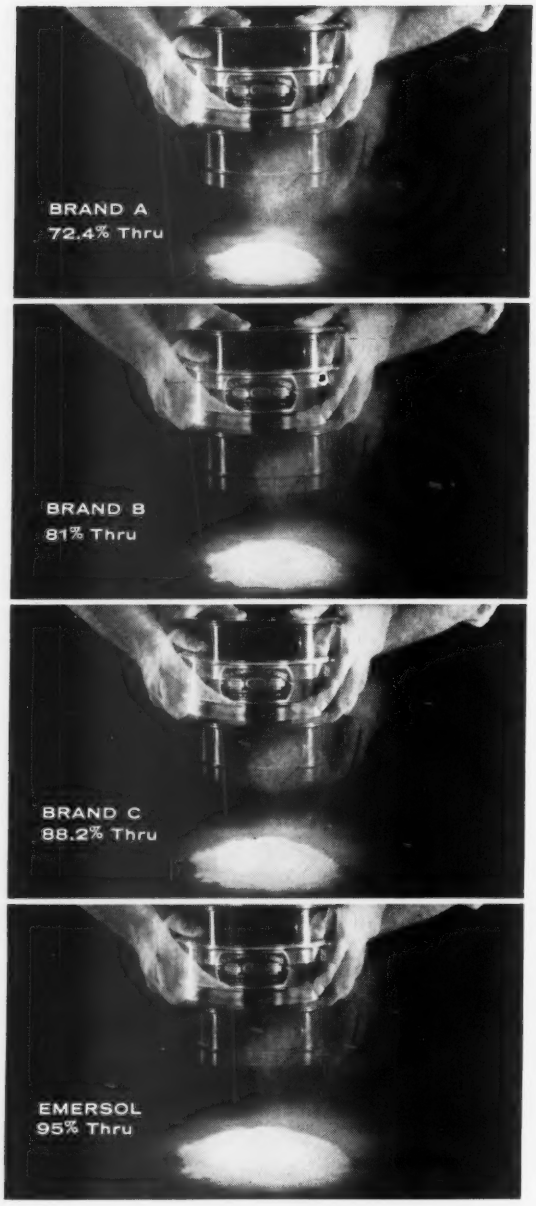

95% Minimum through No. 100 U.S. Standard Sieve

Thanks to an advanced powdering process, Emery can provide you with the very finest and most uniform powdered stearic acid available. And, the word "finest" applies not only to particle size but also to basic quality and purity.

Why has Emery alone developed powdered stearic to such a high state of perfection? Simply because we do not regard this product as a low-volume "nuisance" business, but rather as a specialty product whose performance is so very important to quality-conscious users. We even go so far as to provide special packaging in 50-lb. specially lined multi-wall bags, which provide maximum protection against contamination and facilitate handling.

Why not obtain the special advantages of Emersol Powdered Stearic Acid for yourself? For evaluation samples of Emersol 132 Lily (T.P.), Emersol 120 (D.P.), Emersol 140 (70% palmitic) and Emersol 150 (80% stearic), or literature on the complete line of Emersol Stearic Acids, write Dept. D-11.

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Chicago • San Francisco • Montreal • Philadelphia • Toronto

Established 1885

The regional managers you see here are relaying customer requests for technical assistance to Brooklyn headquarters. The results of one such call are related below:

TECHNICAL SERVICE "ON THE LINE"

Here's how one drug manufacturer took advantage of Pfizer's experience in antibiotics and steroids:

"How can I get a special extraction technique for neomycin in the presence of my ingredient *X?*" a customer of Pfizer's Chemical Division recently asked.

"I can't assay my product for neomycin until I get this solved. It's holding up all my stability tests, and I'll never be able to control production without a reliable assay," was his plea.

The customer had decided several weeks before to go into the growing topical products market with an anti-inflammatory, anti-infective agent containing neomycin, polymyxin and hydrocortisone. Having had little experience with non-systemic antibiotics and steroids, he called Pfizer for help.

At that time, the Chemical Division called in the Technical Service Department who, in short order, supplied the customer information on:

1. Suggested antibiotic combinations for balanced therapy
2. Rationale
3. Use levels 4. Stability
5. Compatible ointment bases

It was when the drug manufacturer got into making up his experimental samples that he ran into the neomycin extraction problem in the presence of ingredient *X* (his own specialty).

The Technical Service Department worked out the extraction technique. But, they didn't stop there. They went on to run both accelerated and room temperature stability studies on the experimental formulation and check assays on the first production batch for the customer. Now, he has a successful new topical product. And we've another satisfied customer.

As you probably guessed, we've been trying to show you how you, too, can take profitable advantage of Pfizer's experience in antibiotics, steroids, and vitamins. Just call your local Pfizer representative or write to Chas. Pfizer & Co., Inc., Department WP, 630 Flushing Avenue, Brooklyn 6, N. Y.

Science for the world's well-being — **Pfizer** — *Manufacturing Chemists for Over 100 Years*

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Chemical Sales Division
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LILAC 9830 W.O.J. For many years a world renowned Lilac. Now offered in its original form in a colorless type. One of the most outstanding raw materials at the disposal of the perfumer. For creams, perfumes, lotions. Ask for samples and prices — you will be delighted with the result.

NEROFLOR EXTRA To produce the odor value of Oil Neroli Bigarade Petale. Has a pronounced flowery odor and a heady fixative base note characteristic of so many natural flower oils. Try it in Eau de Cologne and to modify Neroli, Orange Blossom, Jasmin, Gardenia, Tuberose, and Sweet Pea.

NEROFLOR SAVON Possesses the same merits — stable in soaps, recommended for low priced purposes.

MUGOFLOR A new chemical with remarkable blending qualities of great value to the perfume compounder. This product has had unusual and enthusiastic acceptance. Of true Muguet quality, it is a marvelous blending agent. Tenacious, intense, yet of fine floral character. Non-discoloring.

AGRUMEN ALDEHYDE Refines the fresh green note, and also the characteristic note common to all Citrus Oils. A most interesting modifier for Eau de Cologne, Bergamot artificial, or to add lift and refinement to the top note of many perfumes.

You are invited to send for samples of any specialties that interest you.

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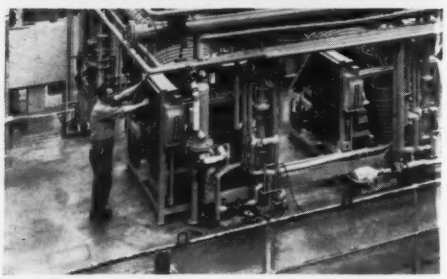
4

For the maker of tablets and dry-fill capsules, we also put up *Myvax Dry Vitamin A Palmitate* in little gelatin beads at a potency of 500,000 units to the gram. By our own tests, this palmitate-gelatin entry has outdistanced all others in the great stability steeplechase. The beads are sized for easy handling and incorporation, and show excellent crush resistance during tableting.

3

At the delivery end of the line, full-fledged vitamin A awaits the call to action. On tap, at the standard potency of one million U.S.P. units to the gram, is *Myvax Vitamin A Palmitate*. We can blend other potencies to order. *Myvax Vitamin A Acetate* can also be blended to the potency you need.



2

These molecular stills were a little idea of ours that came in handy a long time ago for making non-smelly vitamin A from fish oil. Now they provide mere subplot interest, while the main act goes on in a jungle of more sophisticated plumbing.

1

This is why users of our *Myvax*® *Vitamin A* can feel secure from the economic effects of tide, typhoon, and fisherman's luck. The vitamin as we make it today has its chemical beginnings on dry land.

Vitamin A from the ground up

All this is of interest to the manufacturer who prefers to have his vitamin A come from a primary source; a source that makes it from the ground up, and cares not a whit about selling it directly to the general public. For samples, cooperation in stability tests, vitamin A assays of finished products you make, write ***Distillation Products Industries,*** Rochester 3, N. Y. Sales offices: New York and Chicago • W. M. Gillies, Inc., West Coast • Charles Albert Smith Limited, Montreal and Toronto.

leaders in research and production of vitamin A

DPi

Also... vitamin E... distilled monoglycerides ...some 3700 Eastman Organic Chemicals for science and industry

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"Look! If we put these claims in the form of a quizz. anything goes."

Keeping Posted

Cosmetic Chemists' Award to Gump

Dr. William S. Gump, research associate of The Givaudan Corporation and of its subsidiary, Sindar Corporation, has been named to receive the 1959 Medal Award of the Society of Cosmetic Chemists for his contributions to the "art and science of cosmetics." Recognized as a leading contributor in the field of bacteriostatic agents for use in antiseptic cosmetics, soaps, and pharmaceuticals, Dr. Gump's work over the last 20 years included the discovery of hexachlorophene and led to the development of many other anti-bacterial agents.

The medal will be awarded at the society's annual meeting and medal award dinner, to be held December 2, at the Hotel Commodore, New York. S. F. Coneybear, society president, will make the award, and R. E. Horsey, vice-president in charge of sales of Givaudan-Delawanna, Inc., and Sindar Corporation, will act as eulogist for the eleventh recipient of the award.

Dr. L. D. Apperson, chairman of the scientific program of the society, has announced the following program for the day-time sessions: morning, 9:00 to 12:30, New Trends in Cosmetic Testing, by Louis C. Barail, consulting biochemist, New York; The Beauty of the Enzyme Screen, by Dr. V. F. Lisanti, Tufts University School of Medicine; Vinyl Copolymer in the Cosmetic Cosmos, by Paul Weitz, National Starch and Chemical Corporation; The Closed, Open, Prophetic and Repeated Insult Patch Tests in Study of Cutaneous Reaction, by Dr. Joseph V. Klauder, consulting dermatologist, Philadelphia.

Afternoon session: Dental Calculus, by Dr. Stanley Hazen and Dr. Helmut Zander, Department of Periodontology, Eastman Dental Dispensary, Rochester, N. Y.; New Polysaccharide Gum from Dextrose by Microbial Synthesis, by Dwight L. Miller, R. F. Anderson, Allene Jeanes and S. P. Rogovin, Northern Utilization Research and Development Division of the U.S.D.A., Peoria, Ill.; Chemistry of the Inflammatory Response of the Skin, by Dr. J. C. Houck, Biochemical Laboratory, Children's Hospital Research Foundation, Washington, D. C.

Courses in Russian

Two courses in scientific Russian for 44 research personnel and executives of Merck & Co. began early last month at the Merck plant in Rahway, N. J., as off-campus offerings of the Union Junior College, Cranford, N. J. Eighteen persons are enrolled in an advanced class which continues for 15 weeks, meeting each Thursday from 1:30 to 3 p.m. A beginner's class has 26 students meeting on Thursdays from 3:45 to 4:45 p.m. The length of this course has not been decided. Savel Kendall, a member of the full-time faculty of the college, is the instructor. The program was first organized for research executives at Merck last Fall.

Beginner and intermediate courses are also under way at Ciba Pharmaceutical Products, Inc., Summit, N. J., and a 30-week intermediate class has been organized at Union Carbide Plastics, Bound Brook, N. J.

"Charmaceuticals"

"Charmaceuticals" is a word added to the vocabulary of the industry by George J. Abrams, president of Hudnut-DuBarry-Sportsman Division, Warner-Lambert Pharmaceutical Company, in a talk before the Pharmaceutical Advertising Club of New York last month. Said Mr. Abrams:

"It is my opinion that we are entering a new era in cosmetics and toiletries, a period in which the skills of the cosmetic chemist, the pharmacologist, and the imaginative engineer combine to create a new kind of product which I will call Charmaceuticals."

As examples of this type of product Mr. Abrams cited

no one under the sun beats Croda for production of lanolin!

Croda's world-wide organization now offers
better than ever service through
our newly opened plant in the United States
. . . the better to serve our customers
who now buy over 10,000,000 pounds of lanolin
and lanolin derivatives from us per year . . .

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hair dressing which not only keeps the hair in place, but also therapeutically combats dandruff, moisturizes the hair, and conditions the scalp; shaving cream which puffs from an aerosol spout, containing medicated ingredients to heal shaving nicks and to condition the skin; and deodorant applicators which spurt, aerate, and roll the deodorant on.

Procter Medal to Boyer

The achievement award of the Philadelphia Drug Exchange—the Procter Medal—awarded for the first time since 1953, will be presented to Francis Boyer, chairman of the board of Smith, Kline & French Laboratories, at the annual meeting of the Exchange on January 17, 1960. Said Robert L. McNeil Jr., president of the Exchange:

"The award will be made to Mr. Boyer for the immeasurable import of his personal leadership to the fields of mental health, medical education, and pharmaceutical research, together with his broad service to pharmacy and medicine through the growth of his company."

Geigy Drug Research Here

Having, until recently, conducted all its drug research at its parent plant in Basle, Switzerland, Geigy Chemical Corporation has dedicated a multi-million dollar research building for drug research at its Ardsley, New York, operation. The building, consisting of three floors which house 28 laboratories and extensive up-to-date animal quarters, adds 33,000 square feet to a complex of buildings on the 42-acre hillside site. The laboratories are equipped with the most modern apparatus for chemical, biochemical, and pharmacological research.

Sterling Sues on Bayer Mark

Sterling Drug, Inc., has filed a $5 million damage suit in the U. S. District Court for the District of New Jersey, against Smith, Barney & Co., a security house, and five of its general partners. The suit is concerned with a 70-page illustrated booklet recently published by Smith, Barney, entitled *Farbenfabriken Bayer and the German Chemical Industry*. The suit charges a conspiracy among the defendants and Farbenfabriken Bayer of Germany. Sterling claims infringement and dilution of the distinctiveness of its Bayer trade name and its Bayer Cross trademarks. The defendants are also charged with trade libel, unfair and unlawful competition, and violation of the Securities Exchange Act.

The complaint points out that Sterling has no connection with Farbenfabriken Bayer and points to Sterling's long use of the Bayer name and of the Bayer Cross, which are registered as trademarks in this country with respect to a wide variety of products, and that "plaintiff is now sole owner of all such registrations and trademarks."

The complaint states that the pamphlet has on its front and back covers a device consisting of "Bayer" written in cross form within a circle, and on the cover and throughout the pamphlet the term "Bayer" is used to identify Farbenfabriken of Leverkusen, Germany. It is further charged that the pamphlet contains untrue statements respecting pending litigation between Sterling and Farbenfabriken Bayer, as well as misleading statements in other respects.

Chanel Protects Trademarks

Chanel Industries Inc. received judgment for $7,000 in a civil action in the U. S. Court in St. Louis, against Pierre Marche, Inc., and other concerns involved in the sale of atomizer perfumes labeled "C" and "C.5." The judgment enjoins the use on perfumes or cosmetics of the designations "C," "C.5," "5," or any other variation of the plaintiff's registered trademarks "Chanel," "No. 5" and a linked "C" monogram. The $7,000 represents Chanel Industries' damages, profits, and costs. Defendants were ordered to deliver for destruction all perfume and cosmetic labels, packages, and containers bearing the designations "C 5" or "C."

Pfizer Offers Salk Vaccine

Permission to market a Salk-type vaccine has been granted to Chas. Pfizer & Co. The vaccine produces an immunity in human beings equal to the best commercial vaccines now available, according to Dr. Jasper H. Kane, Pfizer vice-president in charge of research. Pfizer is also working on an oral polio vaccine of the type developed by Dr. Albert Sabin of the University of Cincinnati.

Pfizer Cited for Share Owner Relations

Chas. Pfizer was awarded a special Bronze Oscar by *Financial World* for its share owner relations program. Richard J. Anderson, editor of the *Financial World*, pointed out that Pfizer was selected for the special award because of the quality of its annual report, annual report advertisements, interim and post-meeting reports, as well as related share owner relations material. Five thousand reports were evaluated in a survey by a board of judges headed by Dr. G. Rowland Collins, dean of the Graduate School of Business Administration, New York University. The reports were screened under the direction of Lawrence R. Kahn, president of the New York Society of Security Analysts, with the cooperation of 22 security analysts.

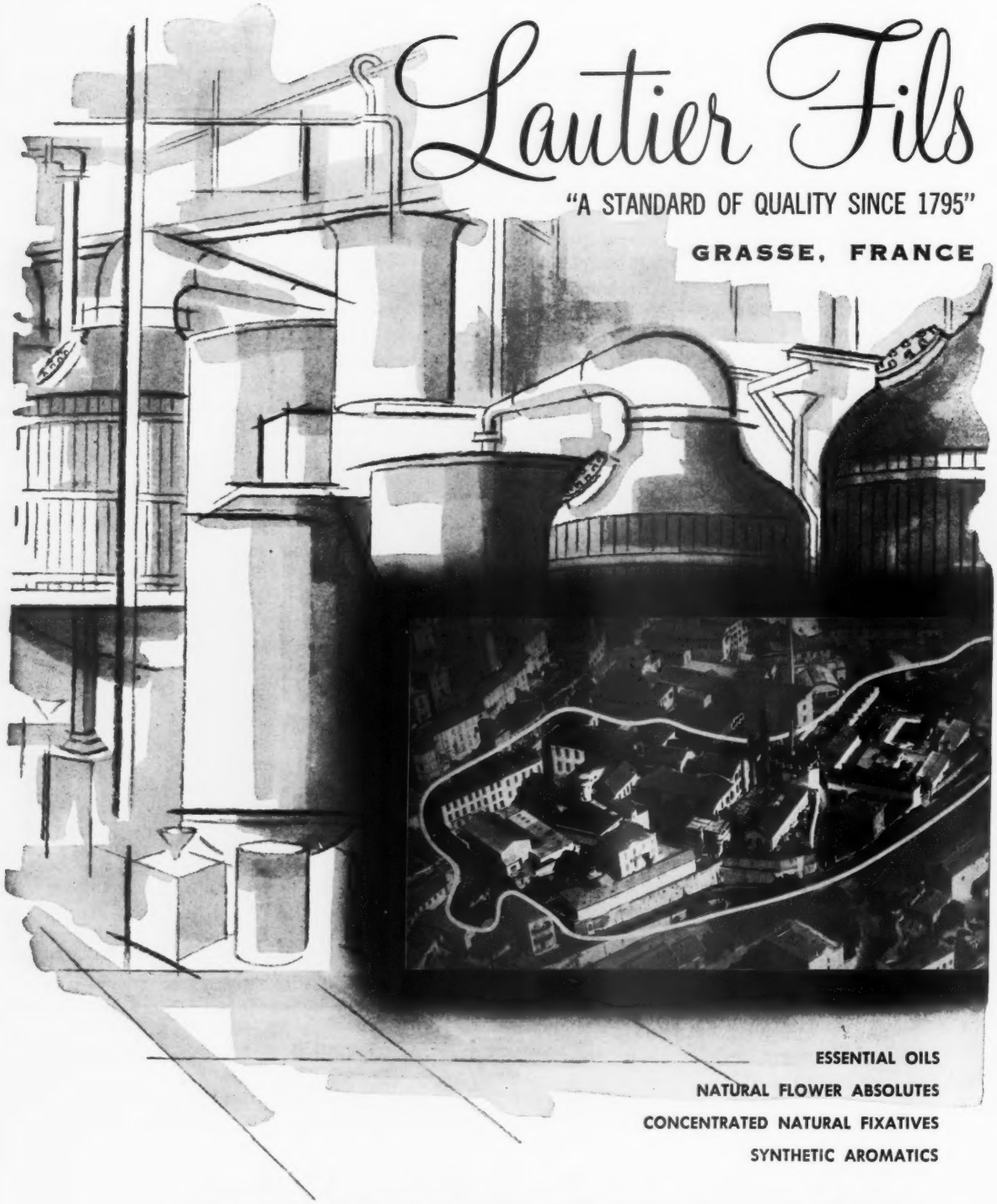
Cancer Elimination in 75 Years?

Just as for many years we have read every so often that petroleum sources would be depleted within seven years, so we have read for many years that a cancer cure would be discovered within ten years. And, just as petroleum sources have never been depleted, despite the fact that our use of petroleum has expanded tremendously—today there is actually more

Lautier Fils

"A STANDARD OF QUALITY SINCE 1795"

GRASSE, FRANCE



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SYNTHETIC AROMATICS

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oil than we know what to do with, so also the cancer cure has never arrived, although the ten years have come and gone. But now we have a longer range prediction. Dr. Paul E. Steiner, a senior member of the Institute for Cancer Research in Philadelphia, and Professor of Pathology at the University of Pennsylvania School of Medicine, told the seventy-fifth anniversary observance at Memorial Center for Cancer and Allied Diseases, New York, that death from cancer may be almost wholly eliminated within 75 years.

"Long before the year 2034," he said, the mortality from most, if not all, kinds of cancer should be zero or near that figure. In this victory epidemiology will have played a major role." The greatest contribution of epidermiology, he said, will be in determining the causes of cancer and in pinpointing the actions necessary for prevention.

J. & J. Buys Swiss Drug House

Johnson & Johnson has acquired Cilag-Chemie, a Swiss pharmaceutical Company. Cilag-Chemie, based in Schaffhausen, is a producer of ethical drugs and has affiliated operations in Germany, Austria, and India. J. & J. plans to expand the company's activities as part of its over-all policy to increase its foreign interests.

B_{12} Patent Infringement

Hallmark Laboratories, Inc., has been barred from further infringement of two vitamin B_{12} patents of Merck & Co. under a judgment in Federal District Court in Chicago. The patents are U. S. No. 2,703,302, relating to vitamin B_{12} concentrates, and No. 2,563,794, relating to crystalline vitamin B_{12}. Hallmark admitted the two patents are valid and that it infringed the product claims of these patents.

Television Advertising

The Television Code Review Board, which is a continuing committee of five practicing commercial broadcasters who serve voluntarily, appointed last March a subcommittee to study and report on the advertising techniques used in presenting "sensitive" or "personal" products on television. The report summarizes the initial findings of the committee based on a lengthy review of television commercials now on the air for the following "sensitive" categories: laxatives, deodorants, depilatories, toilet tissue, corn and callus removers, cold and headache remedies, and foundation garments.

After viewing a great number of current television commercials, the committee compiled a set of common-sense guideposts, each formulated in unanimous agreement. A digest of these guideposts follows:

Laxatives: *Avoid* techniques which over-dramatize the discomfort of one requiring a laxative, which emphasize the speed or efficiency of the laxative, which duplicate the mechanics of elimination by charts or props. *Seek* techniques which demonstrate the pleasant after-effects of the product, and dramatic settings connected with places other than the family bathroom.

Deodorants: *Avoid* graphic words like sweat and odor, camera shots which show the arm pit or the actual application of the deodorant, those which demonstrate the deleterious effects of perspiration on clothing, settings connected with unpleasant odors: *Seek* clinical words like perspiration, visual devices like the silhouette technique which lend an impersonal air, techniques which imply cleanliness and good grooming after use of the product.

Cold and headache remedies: The committee studied commercials for the popular analgesic headache remedies, nasal sprays, and decongestants. In its opinion most unfavorable reaction from the viewing public comes from annoyance after repeated exposure rather than from any offense of good taste. *Avoid* the overuse of visual devices of the circulatory, digestive or nasal systems, sound effects or copy which describes discomforts morbidly. *Seek* audio and video techniques which show the pleasant after-effects and relief gained from the product, visual demonstrations which rely on the abstract rather than the graphic.

Corn and callous remedies, including athlete's foot preparations and foot powders: *Avoid* words like "itching" and "burning," visual dramatizations of foot discomfort, presentations showing the product in actual use. *Seek* means of demonstration by comparison and techniques which show the product as an adjunct of good grooming or well being.

Frank Taylor Honored

Last month the Pharmaceutical Contact Committee held a dinner in Washington to celebrate its 35th anniversary, and also to honor the committee chairman, Frank O. Taylor, on his eightieth birthday. In the presence of about 170 persons, including representatives of the Food and Drug Administration and the two official compendia, Dr. Taylor was presented with a silver tray and goblets made by Dr. John H. Brewer, Hynson, Westcott & Dunning, from silver recovered from precipitates from the laboratories of Parke, Davis & Company, from which company Dr. Taylor retired some years ago. One of the speakers at the dinner was Dr. Charles E. Vanderkleed, who with Dr. Taylor was a member of the original group that established the Combined Pharmaceutical Contact Committee in 1924, the forerunner of the present organization. Dr. Taylor has been chairman of the committee since 1929.

Dr. Henry Welch Quitting Publishing

Dr. Henry Welch, Chief of the Division of Antibiotics of the Food and Drug Administration, is ending all his non-governmental activities that are not in accord with a new conflicts-of-interest policy announced by HEW Secretary Arthur S. Flemming

slick trick for tricky tablets:

use ***Mannitol*** *as your base* Is your lab working on new formulations for press-coated or multi-layer tablets? Atlas Mannitol, N.F., used as a base or excipient, offers you many opportunities for improving the shelf-life and flavor of these products.

Want to cherish moisture sensitive ingredients? Coddle them with non-hygroscopic Mannitol. Need dependable binding, layer to layer? Mannitol. Cool taste? Mannitol again.

Our new laboratory bulletin gives you more data on making press-coated or multi-layer tablets with Mannitol, N.F. Ask for LM-18.

Chemicals Division
ATLAS POWDER COMPANY
Wilmington 99, Delaware

last month. Editing and publishing work performed by Dr. Welch was questioned in *The Saturday Review* last January 3.

Dr. Welch is resigning his editorial positions with the publications *Antibiotics and Chemotherapy*, and *MD Magazine*. Also, Medical Encyclopedia, Inc., a publishing house owned by Dr. Welch, Dr. Felix Ibanez and their wives, will cease publishing *Antibiotics Annual* and any other profit-making material containing in significant measure Government information in Dr. Welch's special field. Secretary Flemming said this action and the department's new policy would be reported to three congressional committees which made inquiries based on the article in *The Saturday Review*. He further stated that Dr. Welch had taken on his editing and publishing activities with approval of his supervisors, and that there had never been any actual conflict of interest. Food and Drug Commissioner George P. Larrick said employees of FDA were encouraged to engage in private assignments "provided they do not involve a real or apparent conflict of interest nor associate the employee with his official duties in a way which would reflect discredit on the department."

Drug manufacturers who may be utilizing the services of persons on the payrolls of the FDA, NIH, and PHS, should be guided by the new rules which follow:

"Of first importance in evaluating the appropriateness of outside activities . . . is the general criterion which is applicable to all such activities: that they should not involve a real or apparent conflict of interest nor associate the employee with his official duties in a way which would reflect discredit upon the Department. This criterion should be carefully considered and applied in respect to all nonofficial activities particularly those involving remuneration . . . Text of the regulation concerning consultative services is as follows:

"It is the policy of the Department to authorize the undertaking of consultative services for a fee only in unusual and appropriate situations which clearly divorce the services rendered by the employee on a fee basis from his official duties with the Department.

"With respect to *all* consultative services which are not a part of an employee's official duties, fees are prohibited except where:

"1. The services are performed outside working hours, or while the individual is in leave status;

"2. The services are performed without expense to the Government;

"3. They are not provided to organizations, institutions, or State and local Governments with which the official duties of the employee are directly related or indirectly related if this indirect relationship is significant enough to permit the existence of a conflict or apparent conflict of interest. (Special note: Such an apparent conflict of interest is particularly likely to occur if the consultative services are provided to commercial firms, public or private institutions or governmental units which have recently negotiated, or may in the near future seek, a contract or grant from the organizational unit in which the prospective consultant is employed. It is not feasible to provide a simple Department-wide definition of organizational unit for this purpose, but employees and approving officers should bear in mind that even when an employee is not personally involved in the process of making awards and grants, if he is closely associated with those who do make such awards and grants and if it might reasonably appear to the public that the employee is in position to exercise influence in the award of such grants and contracts, a proposal that he should provide consulting services for a fee to an applicant or prospective applicant should be reviewed with extreme care.);

"4. They are not services which can be obtained without cost from the Government.

"All consultative services for fees require administrative approval and should be requested . . .

" 'Approval', . . . refers only to authorization of the activity and does not imply support for its content . . .

"With respect to all matters on which administrative approval is required under this supplement, reporting will normally be required to the approving officer with respect to such activities. The form and timing of such reports will be prescribed by the approving officer, but shall not be less frequent than annually in connection with continuing activities for which administrative approval is required."

Arrangements which exist, but which are in obvious conflict with the regulations, must be terminated within ninety days.

PMA Public Relations

The Pharmaceutical Manufacturers Association has engaged Hill & Knowlton, public relations firm, to counsel the association on some of its activities. Dr. Austin Smith, PMA president, has also announced that Dr. Paul Briggs, secretary and executive director of the American Foundation for Pharmaceutical Education, will serve as a consultant to advise the PMA on its relationships with pharmacy.

Kimble Award for Virus Technique

A new technique which helps scientists speed up both research and control of virus diseases won the 1959 Kimble Methodology Research Award for Doctors Renato Dulbecco and Marguerite Vogt, division of biology, California Institute of Technology, Pasadena, Calif. The award, which is sponsored by Kimble Glass Company, subsidiary of Owens-Illinois, was conferred by the Conference of State and Provincial Public Health Laboratory Directors. One thousand dollars and a sterling silver plaque constitute the award

Previous research in viruses concerned direct use of animals—by injecting them and waiting for results.

The new technique takes live animal tissues—pieces of skin. for example—and exposes them under "growing conditions" to viruses. Although the viruses are invisible to the microscopic eye, they can be watched as they develop on the "live" tissue by looking for changes in the tissue, which can easily be recognized even without a microscope. As a result, the viruses can be counted, which was practically impossible heretofore. The virus population count is important because it facilitates the isolation of pure strains of viruses. This new technique is being used for research in the majority of known viruses for vaccine development.

Japan Forces Saccharin Cut

Competition from Japanese imports has caused Monsanto Chemical Company to cut the price of its oldest product, saccharin, approximately 20 cents a pound on all grades, a reduction in price of more than 10 per cent. Under a new schedule of prices which is Monsanto's lowest in 16 years, saccharin is quoted at $1.40 to $1.53 per pound in 1,000 pound lots, compared with a previous range of $1.50 to $1.63 a pound. Repeated U. S. tariff reductions on fine chemicals are the cause, according to Robert M. Morris, Monsanto vice-president and general manager of the Organic Chemical Division, who added that these tariff cuts have prevented prices from attaining levels commensurate with the increased costs of producing the product in this country.

General Aniline Again in Courts

The question of the ownership of General Aniline & Film Corporation is again going back to the court. in December. And until litigation concerning its ownership is adjudicated in favor of the U. S. Government. the company cannot be sold by the Alien Property Custodian. This marks the eleventh year of this controversy, and the end is not yet in sight.

The particular point at issue in this instance is with respect to the duties and responsibilities of the Special Master, Walter J. Hughes of Washington, D. C. Since his appointment in 1950, Mr. Hughes has had the tedious job of sorting through the many claims and counter-claims to a partial ownership of the company. The latest court action will be before the U. S. Court of Appeals of the District of Columbia.

The government wants the duties of the Special Master curbed. It insists he should merely take depositions and serve as a sort of referee in disputes, and not issue judgments or rulings on questions that might arise during the proceedings. The government contends that decisions and inferences drawn from the testimony should be left to the judge of the district court. Interhandle, the Swiss holding company which claims ownership in G.A.F., will doubtless oppose these views.

Drugs and Driving

A joint legislation committee of the New York State legislature recommended last month enactment of legislation which would bar from the highways drivers who use common drugs, as well as those addicted to narcotics. The Joint Legislative Committee on Motor Vehicles and Traffic Safety listed Benzadrines, tranquilizers, antihistamines, synthetic narcotics, anti-infective agents, plain sedatives and analgesics as among the commonly used medicines which might impair driving ability. Committee Chairman Senator Edward J. Speno said legislation should be aimed at "getting narcotics and barbiturate addicts out of the driver's seat and reducing the amount of driving by persons strongly under the influence of commonly used drugs." He said the new bills would ban driving by habitual users of narcotics, barbiturates, or other drugs that render them "incapable of driving safely"; and require physicians to list with the State Health Department the names and addresses of patients who are habitual users, the Health Commissioner relaying the information to the Motor Vehicle Bureau.

Medical Care Expenditures

Americans are spending six times as much money on health and medical care as they did 30 years ago, according to the Health Insurance Institute. Medical expenditures in the U. S. grew from $3.6 billion in fiscal 1929 to $22.7 billion in fiscal 1958, according to the Social Security Administration statistics. This includes medical and health services, medical research, and construction of medical facilities. While a large portion of this increase is due to inflation and growth of population, a substantial part is due to the fact that U. S. citizens are consuming more medical goods and services than ever before. After allowing for changes in the price level, medical expenditures per person doubled in the 30 years, says the Institute.

The Social Security Administration views the changing picture as follows:

"The proportion of the gross national product used for health care was almost 50 per cent larger in 1957-58 than in 1928-29. During this period, the real value of the gross national product (corrected for price changes) more than doubled."

This means, says the Institute, that the total outlay for health aud medical expenses has tripled in the 30 years. After accounting for the population increase in the period, per capita medical expenditures have doubled.

"There has clearly been a significant stepping-up in the provision of medical care services," says the government. "In large part these advances are a result of the scientific revolution in medical knowledge and techniques that has occurred in this period and in part a result of changes in medical organization and medical programs."

ARE WE RUINING A GOOD LAW?

BY S. L. MAYHAM EXECUTIVE VICE-PRESIDENT, THE TOILET GOODS ASSOCIATION, INC.

I should explain at the very outset that the opinions expressed in this article are the personal views of the writer. They are not to be taken as any past, present or future policies adopted by The Toilet Goods Association, Inc., although it is difficult, after more than 20 years, for one to divorce himself from a position which he has held all that time.

The purpose of the Federal Food, Drug and Cosmetic Act is a single one. It is the protection of the public. Such should indeed be the purpose of those who enforce the law, not only the Food and Drug Administration but the Department of Health, Education and Welfare, under which the Food and Drug Administration operates.

If anyone in government at any time loses sight of that purpose and through that loss attempts to change the pattern of American business, such an attempt should be resisted strongly by the industries affected, as it would be by the public itself, were the questions involved not so difficult and technical as to render their explanation to the public difficult, if not indeed impossible.

I myself played a small part in the work preceding the enactment of the Food, Drug and Cosmetic Act in 1938. I conferred on numerous occasions with the late Senator Copeland and those who, with him, were most anxious to secure the enactment of a law for public protection which at the same time would continue the general pattern under which the Food, Drug and Cosmetic industries had worked for years so successfully. Writing this law was a difficult operation, since it had to encompass numerous ideas not previously a part of our public thinking. There was a great deal of debate as to the general character of the law and its methods of enforcement, and it was finally decided that a procedure "in rem" (that is, a procedure against the merchandise rather than against the seller or purchaser) should be adopted. It was felt that this would aid enforcement by providing for immediate seizure of goods which might damage the public, and that it would also be to the benefit of the affected industries in that it would avoid penalizing an innocent seller or purchaser.

Only one provision of the original law turned in a different direction. That was the one which required the government to certify coal-tar colors to be used in foods, drugs or cosmetics. That provision was written, however, in such a way that the onus of certifying the purity of colors was placed upon the government where, under our system, it rightly belongs. In addition, an exemption was placed in the law to cover materials designed to color the hair but this exemption was carefully worked out to protect the public against products which might be damaging and at the same time protect the economic interests of the many consumers who might feel that hair coloring was essential for the maintenance of their status in life. I believe that the original law was an excellent one, and I further believe that it did effectually protect the public and also added to the growth and stature of all the industries which came under it. This belief is borne out by the fact that enforcement of the law brought very few serious problems and that there are very few cases in which even the most stringent enforcement of the law hampered legitimate business in any way.

As happens with all laws ever placed upon the statute books, through the years certain amendments have been necessary. No law as passed is perfect, but the machinery of our government is such that imperfections can generally be corrected quite easily. Many of the early amendments represented changes designed merely to perfect language and meaning. Unfortunately, later on the philosophy appears to have changed. The philosophy of the public did not change. The philosophy of the affected industries did not change. It was the philosophy of those charged with enforcement which apparently changed.

Lest I be misunderstood, may I make it perfectly clear that this statement casts no reflection upon all the fine Food and Drug Commissioners we have had since the 1938 law went into effect. Mr. Campbell, Dr. Dunbar, Mr. Crawford and Mr. Larrick represent

as high a type of public servant as we have ever had in any position in this country. Perhaps the job just got so big that these fine Commissioners were forced, over the years, into a position of greater dependence upon their subordinates. Perhaps there was a tendency to allow underlings to make vital decisions which should rightfully have been made by the Commissioners themselves. Most of the decisions made were undoubtedly good ones. However, it seems to me that, recently at least, fanatical opinions have shown some tendency to prevail. Since the public health is involved, changes in the law are likely to be drafted in an atmosphere of emotion rather than one of reason. Emotional drafting of laws never leads to good results. We have had one experience of that kind in this country. Most of you will remember our experiment with Prohibition.

I do not desire in this article, nor would there be room enough, to discuss all of the amendments made to the Food, Drug and Cosmetic Act but I should like to point out a few which seem to be contrary to the original purpose of the Act and the original philosophy surrounding its enactment.

The abuses surrounding the distribution of prescription drugs in general and narcotic drugs in particular brought about an amendment which had two profound effects upon the law. First, it partially destroyed the idea of enforcement represented by the procedure "in rem" to which I have previously referred, and, rather than a procedure "in rem," enforcement by the Food and Drug Administration was directly against the person or persons involved in the transaction. That in itself might not have been so bad, but it did place upon the enforcement officers a local operation as distinct from a Federal operation not originally a part of the concept of American jurisprudence. A great deal of the time and energy of the Food and Drug Administration is now devoted to cases with which, in my opinion, they ought not at any time to be concerned. These are proceedings against druggists, many of them small druggists in individual localities throughout the country. It is hard for me to understand why the local authorities in, say, Herkimer, New York, are not better equipped to proceed against a local violator in that town than is the Federal government in Washington and, incidentally, this concept of "Papa Washington" intervening is hastening the breakdown of the concept of local self-government in which I am sure the public strongly believes.

Another event brought about the enactment of a still further amendment. This was the unfortunate elixir of sulfanilamide trouble, whereby a considerable number of persons was damaged by a product put out in good faith by a drug manufacturer. Immediately there was a cry for a remedy, although careful study of the facts would have shown that the existing law was already well adapted to deal with an unfortunate situation of this kind. But we are concerned with effect upon the law itself, which was to introduce the idea of licensing the manufacture and sale of products. Nothing could be more contrary to the American idea of business and of jurisprudence than a provision of law designed to make the manufacturer and seller of a product take out a Federal license to make and sell it. It resulted in several unfortunate tendencies. One was, of course, to throw the development and production of new drugs into the hands of the large manufacturers. The cost of processing a New Drug Application can run from $12,000 to $50,000, and perhaps more. The little fellow who has both brains and energy as well as ideas may not have the money necessary to take out a Federal license in order to go into business or to stay in business.

Incidentally, outside of liquor and a few other commodities which fall into an entirely different class of products, drugs appear to be the only ones now requiring this sort of a license. If we are to go into licensing the manufacture and sale of drugs because some of them may occasionally harm someone, why not go into broad general licensing of all manufacturing of everything? There have been cases, for example, where steel bars broke and people were hurt. There have been cases where automobile steering mechanisms broke and people were killed, but there has been no cry of licensing the steel and automobile manufacturers because such things happened. The laws governing all our business definitely protect those who may be injured by any product which a seller may purvey.

To bring the matter a little closer to home, furs are frequently processed and dyed with products which cause damage to the wearer, but I have heard of no one insisting that the fur manufacturers should be licensed and made to prove to some government bureau that the products which they sell to the public could harm no one under any condition. Of course, if we license everyone, it would no longer be the American system. It would be a lot closer to the system used behind the Iron Curtain, and such broad licensing power would surely lead to the complete crippling of American industry and of the American social structure.

I think it is not too much to state that the fanatical views of a few people led to the demand and presssure which resulted in the recent Food Additive Amendment. This is a frightful hodgepodge of licensing, guarantees and tests which very few understand and which I believe no one can possibly enforce. It gives authority to establish tolerances for additives including zero tolerances, which of course do not exist at all in practice, and at the same time no criteria other than the views of the scientific community, whatever that may mean. There is no recourse for the public when the food supply is changed into something wholly different from what may be acceptable. Al-

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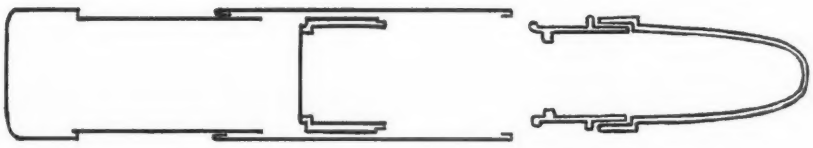


THE Y.V.G. LIPSTICK PROCESS

Yvan V. Grisel, of Geneva, Switzerland, has worked out a number of ingenious variations in conventional lipstick production that may be adaptable to either large- or small-scale manufacturing. These, in brief, are the molding of the lipsticks in individual transparent plastic molds, special equipment for quick and easy molding, an extremely simple and inexpensive lipstick case that can be used either with the plastic-molded sticks produced in the process or with standard molded lipsticks, and, finally, a series of standardized lipstick bases permitting convenient formulation of a large range of lipstick shades even on a very small manufacturing scale.

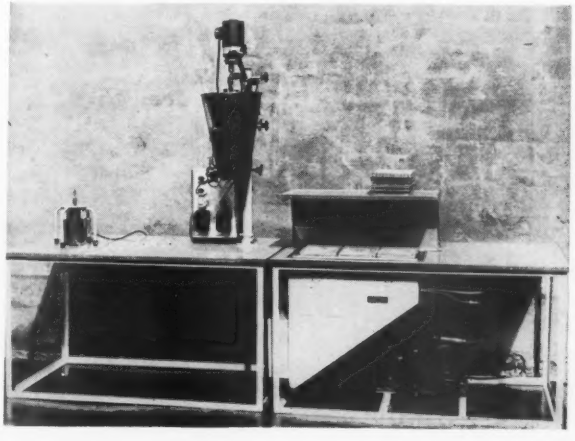
The plastic mold consists of two parts. The upper portion determines the shape and size of the lipstick and is re-used. The lower part is a ring that forms a collar around the lower end of the lipstick and is inserted into the cup of the lipstick case. Melted lipstick mass is poured into the assembled mold and allowed to set. The whole assembly is now inserted into the case and the upper part of the mold removed, leaving a stick with a high surface luster firmly seated in the case. Considerable thought and effort were obviously devoted to the design of the mold. It is transparent, which permits inspection before final insertion into the case; the upper portion fits snugly onto the lower collar, but is easily pulled away; the collar is very slightly tapered for easy insertion into the cup of the lipstick case, and has a flange at its lower end for a tight friction fit with the bottom of the cup; a projecting ring inside the collar holds the molded lipstick very firmly.

Special equipment for the use of the Y.V.G. molds consists of an electrically heated, water-jacketed and thermostatically controlled melting pot, with stirrer, for feeding the melted mass to the molds. Filled molds are cooled in metal baskets by means of a stream of cooled air and are then ready for insertion in cases. Equipment includes a molding table, cooling table, baskets, and molds, and is now available only from Gebruder Kollisch, Nuremberg, Germany. The compact installation, suitable for small molding operations, can be used in multiples, along with conveyer belts, for larger scale production. Advantages claimed, other than convenient insertion of the lipstick into cases, are a higher production rate, along with reduced time required for start-up and evening shutdown.

The simplified lipstick case consists of three extremely simple parts—the outer tube, the plastic cup sliding easily in this tube, and the inner tube. The outer piece is a simple tube, each end beaded on the inside. The plastic cup fits closely but slides easily within the outer tube. The cup is closed at the bottom and is recessed outside at both top and bottom so that it will be flush with either end of the tube. When the lipstick is in the cup, there is adequate clearance between the stick and the wall of the outer tube for the insertion of the inner tube. In the closed position, the inner tube pushes into the top recess of the cup and pushes it down so that the bottom of the cup is even with the bottom edge of the case. In use, the inner tube is taken out of the top of the case and pushed into the bottom end, fitting into the bottom recessed end of the cup and pushing the lipstick out to its full length. The lipstick can only be

(*Continued on page 697*)

The special filling and molding apparatus.



F. A. MINA

E. J. McKERNAN

R. A. CRANE

J. C. HART, A. INNACONE, AND A. OSMAN

F. PRESANT, M. FOWKS, AND P. M. PRUSSAK

AEROSOL INDUSTRY CLINIC

More than 325 registrants attended the first Aerosol Industry Clinic of the Chemical Specialties Manufacturers' Association on October 17, 1959, at the Sheraton-Atlantic Hotel (nee McAlpin) in New York; a comparably high attendance was expected at the re-run in Chicago at the LaSalle Hotel, on October 24. The announced purpose of the clinic was, "to provide basic and up-to-date technical information on pressure filling operations to industry members, especially junior level management, operators and technicians. The program is also expected to be of interest to companies considering entering the aerosol field either as fillers or marketers, to students at colleges and universities offering aerosol courses, and to federal and local government officials." Chairman of the aerosol clinic subcommittee of the CSMA is A. H. Lawrence, Jr., of E. I. duPont de Nemours & Company, Inc.; the program chairman, J. J. Tomlinson, Allied Chemical Corporation. Other members of the subcommittee are G. Barr of G. Barr & Company; J. J. Buchanan of Continental Can Company; J. Froot of McLaughlin, Gormley King Company; W. E. Graham of Clayton Corporation; H. W. Hamilton of the CSMA; E. E. Husted, Union Carbide Chemical Company; and E. J. McKernan of the E. J. McKernan Company.

The opening paper by R. A. Crane, market research manager of "Freon" Products at du Pont, covered *Aerosol History and Marketing*, including the development of the market from 1946 to 1951, expansion through 1958, and the present total dollar value, followed by projections of the future aerosol market. F. A. Mina, of Lodes Aerosol Consultants, Inc., discussed *Aerosol Principles*. Following definitions and general descriptions along with illustrations of product types available as aerosols, components of the pressure package were described—containers, valves, propellants, and product bases. Aerosol systems, two or multi-phase, and their mode of action, were described.

L. T. Flanner of the General Chemical Division of Allied Chemical Corporation discussed the characteristics of *Aerosol Propellants*. Subjects covered were the fluorinated hydrocarbons, compressed gases, and hydrocarbons, their fields of application, physical

properties, and handling requirements. *Aerosol Containers* were described in detail by J. J. Buchanan of the Continental Can Company. Those mentioned included metal cans, and coated and uncoated glass and plastic bottles. Components of metal cans, characteristics of the various types of tinplate and the composition of aluminum and its alloys were discussed. Composition and characteristics of protective coatings, and coating problems were touched upon, as well as product-container relationships with respect to strength and corrosion. W. C. Beard, Jr., of The Risdon Manufacturing Company, discussed *Aerosol Valves*, which are all based upon spray or foam principles. Valve components were described and their materials of construction discussed; the operation of metering valves was described. *Aerosol Laboratory Operations* were covered by D. C. Geary of Union Carbide Chemical Company, with many illustrations of equipment and apparatus for laboratory purposes. Subjects included packaging, testing, and analytical equipment, laboratory materials handling and laboratory safety, as well as matters concerning laboratory budget and organization of laboratory personnel.

J. H. Beacher of Avon Products, Inc., described complaints received by his company concerning aerosol products. Avon operates three filling lines and works with six contract fillers to sell eight household products, four personal items, 14 colognes and three purse spray perfumes; because of rapid stock turnover, relatively small inventories are carried. The nature of distribution, by door-to-door sales, leads to quick and almost total transmission of consumer complaints back to the company. Complaints about aerosol products, numbering 4,000 a week, are based upon loss of product because of leakage, spoiled furniture finish caused by leakage or the nature of the formulation, poor fill, stuck valves, and the like. Analysis of 20,000 returned packages showed that 17 per cent were returned in good condition, but 22 per cent exhibted defective valve operations, 3 per cent had defective containers, and 58 per cent of the returns were due to defects in production and to misuse by the consumer. The company is using instruction leaflets and training sales representatives to demonstrate proper use, so that consumers will handle spray packages as they should be handled. Since the consumer will continue to use only that product which performs as it should, much more effort must be concentrated on the quality control of aerosols.

The formulation problems panel included P. M. Prussak of Associated Brands, Inc., F. Presant of Aerosol Techniques, Inc., and M. Fowks of Powr-Pak Division of Winpower Company, with D. Tillotson of Pennsalt Chemicals Corporation as moderator. The questions touched upon included corrosion problems, the choice between pressure and cold fill, spraying emulsions, and powder aerosols. With respect to corrosion problems, it was said that can linings must be

(*Continued on page 696*)

R. T. FERRY

W. C. BEARD, JR.

J. H. BEACHER

L. T. FLANNER

D. C. GEARY

LIPSTICK COLORS

The so-called "final" order of the Food and Drug Administration banning 17 lipstick colors from certification was published October 6. However, this order does not go into effect until 90 days following its publication, and may be stayed by a hearing which will result from objections filed within 30 days of the publication of the order.

A proposed order was issued by the FDA on April 15, after feeding tests had shown that the colors can harm laboratory animals, and, while the FDA points out that the quantities of the colors which may get into the human digestive system when used in lipsticks will be much smaller than those used in the annual feeding tests, the agency must ban the use of any coal-tar that is harmful in significant amounts in the diet of test animals, even though it may be safe in smaller amounts.

The FDA states that the 90-day feeding tests in rats produced the following results: D & C Orange No. 5—one-half of the animals died at the 2 per cent level; stunted growth was shown at the 1 per cent and the 1½ per cent levels; red blood cells decreased at the 2 per cent and the 1 per cent levels. D & C Orange No. 17—anemia was noted at the 2 per cent level. D & C Red No. 9—spleens enlarged at all levels; hemoglobin lowered at the 1 and the 2 per cent levels. D & C Reds No. 10 and 13—enlarged spleens at all levels. D & C Red No. 19—growth rate retarded at all levels; 100 per cent mortality at the 2 per cent level in seven weeks; liver damage at the 2 per cent level; testes atrophied at the 1 per cent level. D & C Yellow No. 7—granulation of the kidneys at the 1 and the 2 per cent levels. The other colors that have been banned are, according to the FDA, chemically related to these seven colors.

Thirteen of the colors were removed from the list of certifiable D & C colors, but were transferred to the list of colors which may be used in externally applied cosmetics, but not in cosmetics designed to come in contact with the mucous membrane or the lips. These colors are: D & C Orange No. 5 and No. 17; D & C Red Nos. 8, 9, 10, 11, 12, 13, 19, 33, 37; D & C Yellow Nos. 7, 8. The four other colors of the 17, namely, D & C. Orange Nos. 6, 7; D & C Red No. 201; and D & C Yellow No. 9, were not transferred to the list of colors for external use because no batches were ever offered for certification and therefore they have never been used.

While, in the case of Yellows Nos. 3 and 4, the FDA refused to hold a hearing on the ground that they felt the Supreme Court had completely answered the questions at issue, it is pointed out that the case taken to the Supreme Court was a food case. But, should the FDA still refuse to hold a hearing in this case, it would first have to study the objections. Then, even if they refuse, an appeal can be taken to the court.

Due to the fact that the Supreme Court ruling was

to the effect that the FDA does not have the authority to set tolerances as to the amount of the various colors that can be used under varying conditions, but must ban the use of the colors completely if they are toxic when used in any amounts, the FDA has been seeking to have a law enacted that would give them the authority to set tolerances on colors according to their uses. Unless such a bill is enacted, the FDA will be placed in the position of abolishing lipsticks as American women know them, even though the colors used in lipsticks at the present time are not at all toxic when used under these conditions. This means that even though the cosmetic manufacturers must have such a law enacted if they are to continue in business, the FDA is now in the unenviable position of being solely responsible for creating the present crisis in lipstick colors, and therefore in the probable abolishment of lipsticks as they are now made.

It is for this reason that the FDA cannot act too drastically in putting this delisting order into complete effect very rapidly. Congress will not be in session again until next January, and it will be some time after that before an amendment to the Food, Drug, and Cosmetic Act could be enacted to correct the situation. For this reason it is anticipated that the FDA will be not only willing, but eager to grant a hearing on the subject, so that at least another 90 or more days of delay before the effectiveness of the order might occur. Certainly it is essential to the welfare of the FDA, as well as of the industry, that these colors not be denied to makers of lipsticks if they are harmless in such use—which is the fact.

The legislation offered for the correction of this situation is not at all satisfactory to the industry. It is for this reason that more time is needed. After all, if there is no further delay, the present order will become effective on January 4, a time when the members of Congress will just about be arriving in Washington, and long before the time when color legislation could be considered to any degree.

Because of the possibility that users of colors which are likely to be delisted might try to beat the law by stocking up on supplies of these colors, the FDA has amended its regulations so as to provide for a cut-off date on the use of the de-listed colors, as well as a cut-off date for further certification of such colors. The FDA has not found any stockpiling of colors that are likely to be de-listed, but they feel there exists a loophole that should be closed.

An order has been published which sets cut-off dates for six colors recently removed from the list, and one color for which specifications have been changed. This order does not specify cut-off dates for previously certified batches of the 17 lipstick colors, because the delisting order does not become effective until at least next January. But the procedure indicates how the matter will be handled from now on.

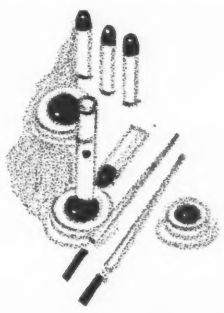
Under the new regulation, the removal of a coal-tar color prohibits future sales or use of that color, after the cut-off date, for the purpose for which it was formerly certified. Previously delisting has not prohibited sale or continued use of batches of colors previously certified, and under this order the use of the banned colors after a specified cut-off date will cause the products containing them to be adulterated.

However, products made with batches certified prior to the cut-off dates will not be adulterated unless hazard to health is such that existing stores of colored foods, drugs, or cosmetics cannot be safely used. In such an event, the FDA will issue special regulations covering the situation.

The seven colors for which cut-off dates have been named are: all certificates for existing batches and portions of batches of FD&C Orange Nos. 1 and 2, FD&C Red No. 32, and FD&C Yellow Nos. 1, 3, 4, issued before these colors were removed from the list, cease to be effective January 1, 1960. Certificates for existing batches and portions of batches of FD&C Red No. 1 not complying with new specifications published in the July 16, 1959 Federal Register, cease to be effective January 15, 1960. These colors are now on the D&C list, but are banned for drugs used internally, foods, and lipsticks. Yellow No. 2 has been delisted, but, since none has been certified, there is no need for a cut-off date. This order will also cover the use of the colors in manufacturing, as well as interstate shipments. Nothing has been said with reference to retail stores.

In addition to the colors thus far delisted by FDA, another proposed order would affect D&C Orange Nos. 3 and 4. The proposal is to remove these colors from use in drug and cosmetic products which are ingested, and place them on the list of colors restricted to products for external use. They would be identified as Ext. D&C Orange Nos. 7 and 8. D&C Orange No. 3 has its biggest use in coloring pills, tablets, and liquid medicinals. D&C Orange No. 4 is used primarily by the cosmetic manufacturers in lipsticks and hair dyes.

The FDA says that these two colors are to be removed from the D&C list because laboratory tests of feeding the colors to animals show them to be harmful at levels of 1 to 5 per cent of the diet. The colors have a tendency to cause enlargement of the spleen, to produce anemia, and, at the highest feeding level, are fatal to 30 to 40 per cent of the animals.



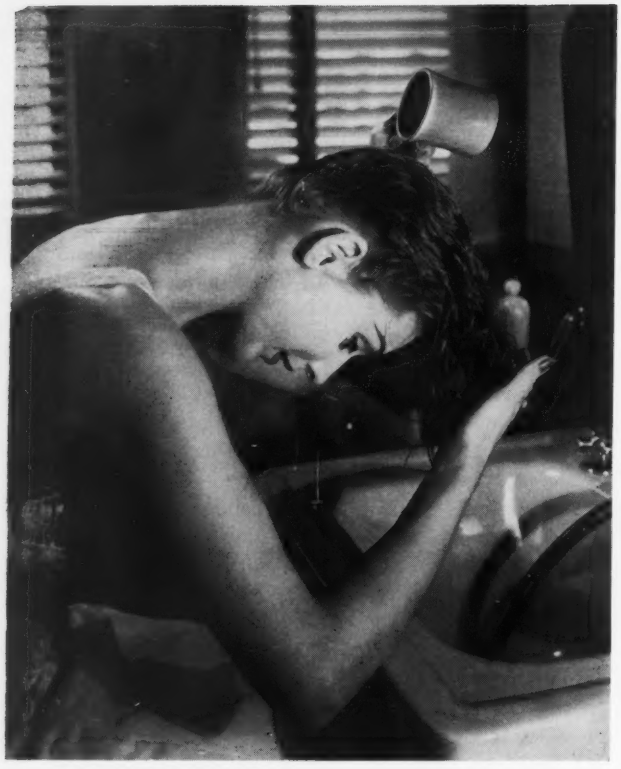


PHOTO COURTESY DOROTHY GRAY

especially one who attended the Sixth Annual Cosmetic Seminar on percutaneous absorption. Though quite satisfied to leave physical demonstrations of trans-epidermal phenomena in the skilled hands of the histologist or dermatologist, I feel there are other aspects of this work which are very much in the province of the cosmetic chemist.

The concept of substantivity has not been sufficiently explored in relation to cosmetic work. Our own interests, which are generally limited to that portion of the skin *above* the barrier, can be served well by a careful examination of some general principles developed by textile chemists. It is also possible that many percutaneous phenomena are controlled or at least influenced by these interactions between the active ingredient, the base vehicle, and the skin. Some of these possibilities will be discussed later in detail.

Although there are almost as many theories about substantivity as there are investigators in the field, the following general observations are more or less accepted:

With respect to the *structure* of the compound being taken up, uniform relationships do exist and the influence of particular groups is known.

The *molecular weight* of the compound will sometimes affect its affinity, apart from the structure of the compound.

A *symmetrical ion* is always attracted less strongly than one which is asymmetrical.

The *surface activity* of a dye or dye solution has considerable influence; the large internal surface of the fiber is more easily wet when the surface tension is reduced. Long lipophilic chains in the dye itself give rapid absorption at room temperature.

Further generalizations may be made concerning the typical action of many compounds toward wool keratin:

Anions combine with amino groups in keratin to form salts; acid dyes are examples of these anions. Anions with low affinity probably form easily dissociated salts. With acid dyes, secondary forces may also involve adjacent amide groups. Small anions show little affinity for wool keratin. Absorption of anions from a mixture is entirely controlled by *p*H, concentration, and relative anion affinities of the components. As the *p*H drops, and the number of hydrogen ions absorbed increases, strongly substantive ions are more strongly attracted to and held by keratin, while ions with lower affinity drop off com-

KERATIN SUBSTANTIVITY

BY ROBERT L. GOLDEMBERG SHULTON, INC.

Substantivity is a broad term covering all those processes which are involved in helping various "foreign" molecules stick to a given material after coming in contact with it, even though the material be rinsed, soaped off, or otherwise extracted afterwards. In the case of keratin, this effect is produced not only by chemical, but also by physical processes. The terms "affinity" and "sorption" are also fairly good descriptions of the phenomenon.

The general concept of substantivity was originally borrowed from textile terminology where it was used primarily to differentiate the effect of dyes toward various fibers. While an acid wool dye would not generally "take" or be substantive to cotton, other dyes would. As new synthetic fibers were introduced in ever increasing numbers, however, the matter became one of crucial importance, since fibers obviously must be dyeable to have commercial appeal. Wetting agents, fiber pre-treatments, dye carriers, and after-treatments to prevent color migration were all introduced, sometimes rather frantically, in attempts to make dyes penetrate into fibers and stay there.

It is not just coincidence that many of these efforts have a rather familiar ring to the cosmetic chemist,

pletely. When a dye solution is acidified with hydrochloric acid, only the dye is absorbed by the keratin, even though hydrochloric acid alone is normally sorbed by the protein. With naphthalene sulfonic acid in place of hydrochloric acid, even more dye is absorbed at a particular *p*H value.

The dye *cation* of basic dyes such as methylene blue is bound by the free carboxyl groups of keratin salt linkages. Cations of "neutral" salts compete for these sites.

Diabasic acids show greater affinity for keratin than do monobasic acids.

Because of *hydrogen bonding*, all phenols have high affinity. Free hydrogen atoms from amino or hydroxyl groups are essential for bonding, whether they are supplied by the keratin or by the solution in contact with it.

A typical wool dye bath for simple acid dyes contains 3 per cent of sulfuric acid and 10 per cent of sodium sulfate on weight of fabric (o.w.f.). The inorganic *salt* cations have no affinity for the fiber, but they attract dye anions, reducing the initial jump of color onto the fiber. This produces more "level" (even) dyeings than a bath containing only acid. Further addition of salt increases uptake of the dye by common ion effect.

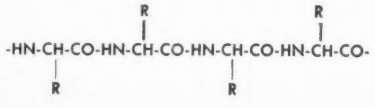
Dyes with very high affinities and which are highly aggregated in solution will first be taken up by the fiber and then re-aggregate, so that extra quantities will be absorbed.

Cationic surfactants in very small quantities increase the uptake of acid dyes. The anionic-cationic mixtures commonly used today in cosmetics and textiles may simply titrate most of the cationic, leaving only small quantities active. More likely, the long chain nonionic salts formed are very substantive. By competing with the free dye, they may act as leveling agents; by being themselves substantive and good solvents for unreacted dye, they may act as carriers and promote the whole process of dyeing.

Some of the effects described above depend on the chemical properties of keratin and the materials contacting it, while others are due more to physical causes. At the molecular level which we are examining, I suspect that such differentiation is rather meaningless. In any case, it would now seem profitable to examine the structure of keratin for some of its more obvious and generally accepted features.

Keratin Structure

Keratin is a scleroprotein characterized by its hardness and insolubility. It is composed of long chains of polypeptides, cross-linked in at least four ways, the whole structure probably arranged in a long helical shape. The basic polypeptide chains can be represented as:



where the letter R represents side chains consisting of amino acid residues. The long chain polypeptides are arranged in a series of parallel "fibrils" held together by the various cross links provided by the amino acid residues.

Four types of cross linkages are postulated. They vary considerably in bond strength. Chemically, they can be individually ruptured and approximate values assigned to the "polymer strength" contributed by each. Undamaged hair is perfectly elastic when stretched no more than 20 to 30 per cent. Quite reproduceable stress-strain diagrams with marked hysteresis characteristics can easily be prepared to check damage done to the fiber by attacking each type of cross linkage.

The most characteristic cross linkage of keratin is the *disulfide* one, more commonly referred to as the cystine link. When any significant amount of free-SH exists in hair or skin (due to cleavage or nonformation of this link) the protein contains a highly reactive mercaptan site which will immediately react with any heavy metal in contact with it, such as nickel sulfate, silver salts, arsenic, and lead, and many others.

A second type of cross linkage known to exist in keratin is the *salt linkage*. This is due to the positional accident of a basic amino acid residue (such as from lysine or arginine) facing acidic residues such as those from glutamic and aspartic acids. Presumably, however, such fortuitous positioning does not always occur; acid or base may face acid or base, rather than vice versa. Salt linkages contribute about 35 per cent of the tensile strength of keratin polymers.

Hydrogen bonds (from amide N to adjacent carboxyl O) are another major factor, providing about 35 per cent of the total cross-link strength. They also hold together the polypeptide chain itself. Under X ray, keratin shows two forms, a folded configuration called *alpha*, and a *beta* form which appears when the fiber is stretched. This alpha-beta change involves a shifting of the hydrogen bonds.

Peptide bonds are the final possible type of cross linkage. They quite probably exist, but it is almost impossible to prove that they do not. It is doubtful that too many such cross links exist, since rupturing the other three linkages (without touching peptide links) leaves very little "polymer strength" which can be attributed to peptide linkages. If they did exist, such cross linkages would be very strong and would stabilize the polymer. A serious objection to the existence of the peptide linkage is the fact that $(CH_2)_4$ must be inserted into the polypeptide chain (at the lysine), transforming polypeptide into a hydrocarbon chain.

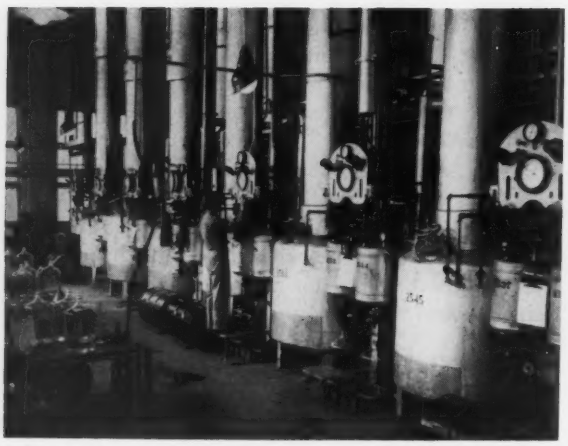
Normal chemical consideration of such structural features of keratin makes it relatively easy to predict behavior of various materials as they come in contact with it. Being amphoteric, it will react with both acids

(Continued on page 694)

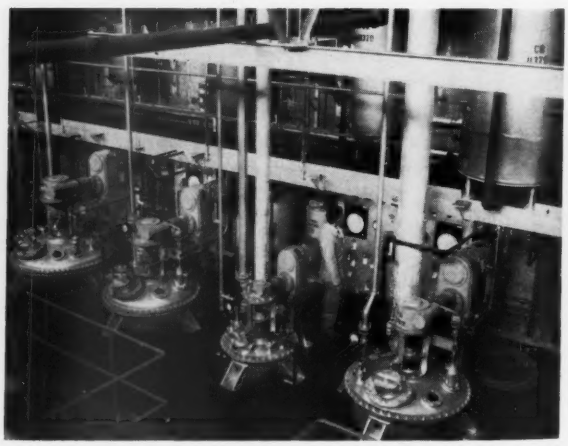
GIVAUDAN'S 35TH ANNIVERSARY

At first glance, we might assume that our mass market for fragrance developed in tandem with the increase of cash in our pockets. Actually, had not the supply been increased and the price lowered simultaneously, the demand might still leave perfume to the luxury class. The difference lies in synthetic aromatics—natural attar of roses from Bulgaria costs about $1000 a pound, but a pound of synthetic rose base comes to a few dollars.

Two pioneers in this field of synthetic aromatic chemicals were Xavier and Leon Givaudan, brothers



A battery of steam-heated vacuum stills at the Givaudan-Delawanna plant. They make large distillation changes possible, and the products produced do not require the high temperatures of other methods.



In the development department, where procedure of the research chemist is developed for full-scale production, the operator checks the instrument panel. New chemicals are not released for a year.

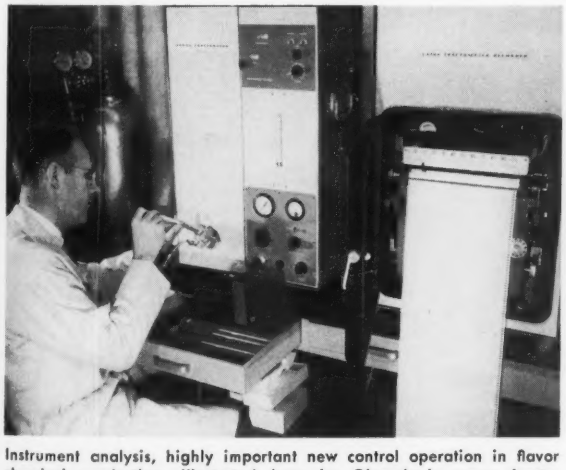
who first collaborated 65 years ago in the establishment of L. Givaudan & Cie., S.A., in Geneva, Switzerland. After building a plant at nearby Vernier in 1898, and another a few years later at Lyons, France, they established Givaudan-Delawanna, Inc., here in the United States in 1924, constructing a plant in Delawanna, New Jersey, which initially housed 75 employees in 20 small buildings. Today there are associated companies in London, Sao Paulo, and Buenos Aires as well, and Givaudan plants in Brazil, England, Switzerland, and the U.S.A.

Just now, Givaudan-Delawanna is celebrating its 35 years in this country, years in which it has grown to more than 500 employees who occupy 82 buildings on the Delawanna site and modern new quarters for the company's executive offices and perfumers' laboratories at 321 West 44th Street, New York City. Givaudan-Delawanna now makes more than three million pounds of chemicals each year, a production greater than that of the entire aromatic chemical industry when the plant opened. Xavier Givaudan, now 93 years old, is still head of the parent company.

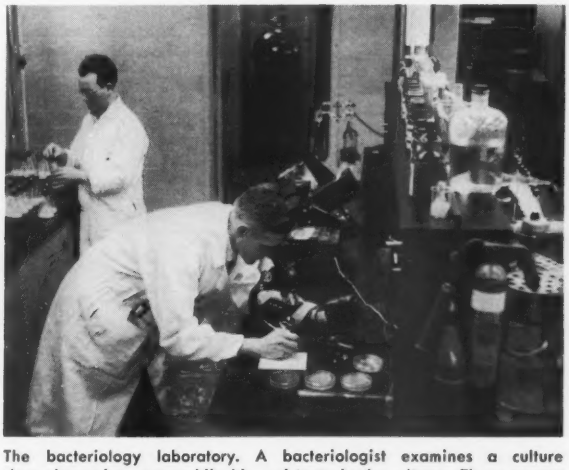
The firm has pioneered with a variety of synthetic chemicals, all of which have contributed to the lowered costs of the products in which they are used. For instance, to supplant the very expensive fixative musk, Givaudan developed synthetic nitro-musks. These led to the development of polycyclic musks, that is, Versalide. The firm also prepares the natural musk product, and was the first to develop the use of the muskrat, in cooperation with Louisiana State University. It has led in developing sources of essential oils in this hemisphere, especially citrus oils. Other synthetic chemicals originated or first produced in the U.S. by Givaudan include eugenol—and the making of vanillin from it, hydroxycitronellal, hexachlorophene, Deltyl, Moskene, Musk Tibetene, Lilial, and, most recently, Nerone.

Along with significant contributions to the development of the industry itself, Givaudan-Delawanna has contributed *The Givaudan Index*, a compendium of specifications for synthetic aromatics, which has become since its publication ten years ago a standard reference for those in the field. A new, extended and revised edition is now being prepared, to enhance its usefulness.

The compounder here transfers a finished perfume blend from the compounding tank to a drum. Givaudan makes many industrial fragrances and masking odors, also fragrances for cosmetics, and soaps.



Instrument analysis, highly important new control operation in flavor chemical production, illustrated here by Givaudan's vapor fractometer which takes a few moments to do what used to require hours.



The bacteriology laboratory. A bacteriologist examines a culture through a microscope while his assistant checks cultures. The company makes many products for the chemical and pharmaceutical industries.

PENICILLIN REJUVENATED

BY JOSEPH KALISH, Ph.D.

With the opening of new research facilities by Bristol Laboratories in East Syracuse, and at a Colloquium on natural and synthetic penicillin, production of a new partially synthetic penicillin was announced by Dr. Amel R. Menotti, vice-president and scientific director of the company. The new anti biotic, Syncillin, will soon be made available to physicians for general use; it is the first important result of the combination of ten years of synthetic research effort with a fermentation method of manufacturing 6-aminopenicillanic acid, a fundamental penicillin nucleus.

The new compound is *alpha* phenoxyethyl penicillin, made by the reaction of *alpha* phenoxypropionic acid with the aminopenicillanic acid produced by fermentation. Preliminary tests, according to Dr.

The press interviews Dr. Chain (center left) and Dr. Sheehan (right).

Dr. Bowman (r) greets Dr. Chain as he arrives for the colloquium.

Menotti, indicate that the drug administered by mouth can provide effective antibiotic action in the blood stream at levels twice as high as those obtained with the same dose of the best oral or injectable forms of penicillin now available. Large-scale trials are awaited to confirm early indications that Syncillin will not produce the incidence of serious allergic reactions caused by other penicillins, and evidence that bacterial strains resistant to older penicillins may be vulnerable to the new form.

New research facilities at the Thompson Road plant were dedicated in ceremonies presided over by Dr. Philip I. Bowman, president of Bristol Laboratories. After an invocation by the Rt. Rev. Malcolm E. Peabody, Bishop of the Episcopal Diocese of Central New York, and an introduction by Mr. Frederic N. Schwartz, president of Bristol-Myers Co., Governor Nelson A. Rockefeller adressed the audience and dedicated the new laboratories. The Governor emphasized that "true progress is achieved through research and effort" and that Bristol Laboratories are participating in the "emergence of the Syracuse area as a medical center of growing renown."

The new research building virtually doubles the available research area at a cost, including the building and equipment, of about $1.3 millions. The first floor is occupied by the Clinical Investigation Department, Research Administration, and the Scientific library. The second floor houses the Microbiology Department, while the Biochemistry Department occupies the third floor. Part of the Product Development Department, devoted to the development of commercial dosage forms, occupies the fourth floor of the building.

At the morning Colloquium, speakers introduced by Dr. Menotti were Dr. Chester S. Keefer, Director of Boston University Massachusetts Memorial Hospitals and Wade Professor of Medicine at Boston University; Dr. Ernst B. Chain, Professor of Biochemistry and Scientific Director of the International Research Center for chemical microbiology at the Instituto Superiore di Sanita in Rome and one of the Nobel Prize winners for the isolation of penicillin; and Dr. John C. Sheehan, Professor of Organic Chemistry at Massachusetts Institute of Technology.

Dr. Keefer, who was coordinator of the wartime penicillin distribution program, discussed "Three Decades of Progress, or Only Thirty Years Ago."

Professor Chain spoke on "Penicillin—Its Past, Present, and Potential Future." Describing the early work, he went on to show the scope of present research operations, including the production of 6-aminopenicillanic acid by the British Beecham group. This has opened a new era which has, so far, permitted the laboratory preparation of 600 new penicillins. Desirable properties being sought in these new derivatives would include:

Absorption by the oral route with antibacterial activity comparable to that obtained on injection;

Long duration of activity;

Reduced allergic and sensitivity reactions;

Activity against microorganisms that have developed resistance to current penicillin varieties;

Expanded antibacterial spectrum.

According to Professor Chain, a number of these objectives has been attained in some measure. The development of resistance to penicillin by various microorganisms, he attributes to their ability to produce penicillinase, which inactivates the antibiotic. A new penicillin that was more resistant to destruction by this enzyme should be able to attack resistant bacteria.

Professor Sheehan, listing objectives substantially identical with those of Professor Chain, described steps leading to his syntheses of penicillin. After the structure of the antibiotic had been elucidated, as part of World War II activity in research and development, the molecule seemed simple enough to encourage belief in the development of a synthetic process. Even with the expenditure of substantial money and effort, however, the *beta*-lactam penicillin ring remained an insurmountable obstacle. Professor Sheehan, with ten years of time that earlier investi-

(*Continued on page 697*)

Drs. Chain, Menotti, Keefer, and Sheehan (standing), the speakers.

Drs. Sheehan and Chain shown Craig apparatus by Dr. Menotti.

ESSENTIAL OILS IN MADAGASCAR AND THE COMORO ISLANDS

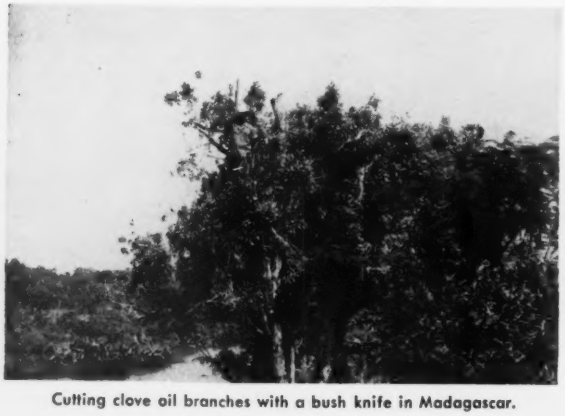
BY ERNEST GUENTHER, PH.D FRITZSCHE BROTHERS, INC.

Another large producer of cloves—following Zanzibar in importance—is the French island of Madagascar which supplies about one-quarter of the world's demand for this spice. Madagascar supplies two types of clove products: the spice, that is, the dried clove buds, and the essential oil distilled from the leaves of the clove tree, clove leaf oil.

Unfortunately, the clove industry of Madagascar, particularly that of clove leaf oil, is in a rather depressed condition. As a result of low prices on the world market, especially in the United States, trees are being neglected or recklessly exploited by the native growers. In fact, there is danger that within a few years production of both the spice and the leaf oil will decline sharply.

The low price level prevailing in the United States for leaf oil must be blamed chiefly upon Madagascar exporters, who are always desirous of acquiring free dollar exchange with which they can import merchandise for sale at high profits in Madagascar. To obtain free dollars, exporters are often willing to offer their products in the United States below the actual cost of production. Obviously this policy on the part of the exporters causes considerable hardship to the native producers who are constantly pressed to lower their own prices. This is an unhealthy condition because the main burden ultimately falls on the small producer, usually an impoverished native in the interior. He feels that he is being exploited by the "rich white," and gradually comes to feel resentful toward the French Administration, as being partial to larger business interests. Another effect of this policy is that prices in the United States are occasionally below those quoted abroad—in France or England, for example. As a result of these conditions Madagascar's clove industry is in a chaotic state—one that cannot last many more years. American users should realize that it is to their own interest that Madagascar continue producing clove leaf oil; this can only be accomplished by paying prices that will permit the native to make at least a modest profit. What good is all the present Point Four Program, all the spending for foreign aid on the part of the United States, if at the same time we deprive the native of a little income to keep him alive and satisfied? We hear of growing

A primitive clove leaf distillery in Madagascar.



Cutting clove oil branches with a bush knife in Madagascar.

Distillation of clove leaves on the east coast, Madagascar.

anti-colonialism among the natives, but we do not seem to understand fully the underlying causes, some of which are certainly economic in nature.

Cloves

In Madagascar the clove tree is cultivated only on the east coast, in a belt about 200 miles long and 30 miles wide, stretching from Tamatave to the north as far as Maroantsetra, almost to Antalaha. Altitude ranges from sea level to about 900 feet; the soil is sandy alluvial above a volcanic subsoil. The trees

Picking the ylang ylang flowers in Nossi Be, Madagascar.

are planted in small patches.

In Madagascar clove growing is a typical native family and cottage industry, primitive in character. The days of large plantations, owned and managed by European settlers, are gone. Even the natives no longer plant new trees; as a matter of fact, they give the existing trees, which are now more than 25 years old, only a minimum of care. Because of excessive cutting of branches for distillation of the leaves, many of the trees appear almost destroyed; others are badly damaged by insects, while about 10 per cent have been affected by cyclones. Nevertheless, there are still plenty of clove trees in full productivity.

Unlike Zanzibar and Pemba, Madagascar has only one clove crop per year, in November and December. The harvesting of the cloves is done by women and children who, standing on ladders, pinch off the ends of the tips of the branchlets, which bear a few leaves, and clusters of clove stems and clove buds. These are collected in baskets and spread on mats to dry in the sun for three to four days. When the color of the buds has turned dark brown, the workers, squatting on the ground, separate the dried clove buds—the spice of commerce—from the stalks and leaves. In former years the stems were used for distillation purposes; on the island of Sainte Marie there were several distilleries, owned by white settlers; here both clove bud and clove stem oil were produced. These distilleries no longer exist. Today the stems are thrown away or added to the leaf material for the production of clove leaf oil, if a distillation post is handy.

Three pounds of green leaves, stalks and clove buds, when dry, yield about one pound of dried clove buds.

A healthy tree produces per year about 6.6 pounds of dried clove buds.

When sufficiently dried the cloves are sold, generally in very small parcels, to Chinese shop owners in the nearest village, either against cash or on a barter basis against food products or other necessities of life. By buying the crops of the natives, the Chinese in recent years have obtained a firm grip on the native economy—much to the concern of the French Administration—and today no exporter is able to obtain either cloves or clove leaf oil without resorting to the Chinese intermediaries. The latter store the cloves in their dingy shops, often under rather unsanitary conditions. This may often result in contamination with foreign matter, insects, and rat droppings.

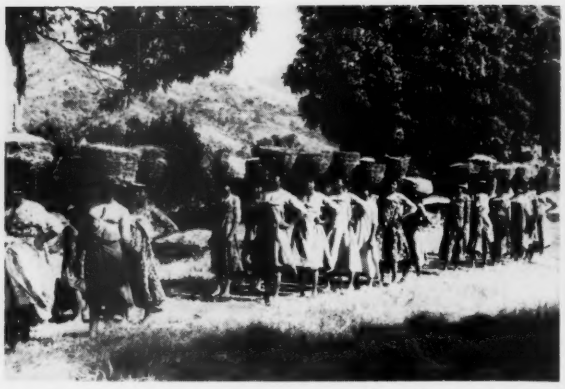
From the Chinese intermediaries, the spice goes to the exporters, most of whom have their own purchasing agents (for coffee, cloves, etc.) in the producing centers. The exporters must eliminate foreign matter from the accumulated small lots, and dry the cloves so that they meet official standards. This may entail a loss of up to 10 per cent of the weight of the spice.

The official standards of the French Administration in Madagascar grade the cloves into four types, but

Assembling the ylang ylang flowers on the plantation in Nossi Be.

A large, well-kept ylang ylang plantation on Anjouan, Comoro Islands.

Inside the distillery in Bambao, Anjouan, Comoro Islands.



Harvesters carrying ylang ylang flower material to Bambao distillery.

practically all the spice exported from Madagascar falls into the third type, which specifies:

"The clove buds must be whole, dry, healthy, not distilled, without trace of mold; they must contain less than 5 per cent vegetable impurities (stalks, debris of leaves and of fruit), less than 10 per cent of buds deprived of their terminal heads; they must be free of foreign matter, and contain not more than 16 per cent of moisture."

There are also grades #1 and #2, but specifications for these higher qualities are so strict that exporters simply cannot meet them; too much cleaning of the spice would be necessary. As regards grade

Charging a still with ylang ylang flower material, Anjouan, Comoros.

#4, the specifications are very wide, and exporters are afraid that this quality might be rejected by Customs authorities, or by Food and Drug authorities abroad. Moreover, the difference in price between #3 and #4 is almost negligible. There is no distiller's grade exported from Madagascar.

The total production of cloves in Madagascar varies greatly from year to year and seems to follow a three-year cycle, a very good year with approximately 8,000 metric tons, followed by a medium year of 4,000 tons, and a poor year of about 1,000 tons. Average production per year amounts to roughly 4,000 tons; in three years altogether about 13,000 tons of cloves are produced.

It should be mentioned that in the Tamatave-Maroantsetra region of Madagascar clove, including clove leaf oil, is the most important export crop, after coffee. However, the Madagascar clove industry is not expanding; in fact, it is rather on the decline for a number of factors.

(1) Because of the low prices now prevailing for the spice, and particularly for the leaf oil, new plantings are not being undertaken.

(2) A clove tree attains productivity only ten years after planting, while a coffee plant produces after four years. Moreover, coffee now fetches very high prices. Soil and climatic conditions on the east coast of Madagascar are ideal for the cultivation of coffee.

(3) Excessive and destructive trimming of the trees for the production of clove leaf oil is ruining the stands. Since they are not given sufficient time to recuperate, the trees are becoming exhausted, with many dying outright.

(4) Infestation of the clove trees by a small caterpillar (*Xylentes cretaceus*, fam. *Thyrididae*), locally called Andreta, is doing much harm. It bores into the branches, causing them to dry up and die. The damage has been particularly heavy in the region of Soanierana, where the parasite has invaded about 60 per cent of the trees; they are now starting to die.

The biological life cycle of the insect is still unknown and no efficient insecticide has been found yet, the only remedy being to cut off the affected branches and to burn them.

(5) Brush fires set by the natives to prepare the land for the growing of rice do a lot of damage to the clove trees.

(6) Clove trees are easily uprooted and destroyed by cyclones.

(7) General lack of labor in the growing regions and indolence of the natives.

It is particularly because of the last-named factor that for many years a great part of the clove buds has remained on the trees—unharvested. Recently this condition has worsened. The natives on the east coast of Madagascar, particularly the older generation, are

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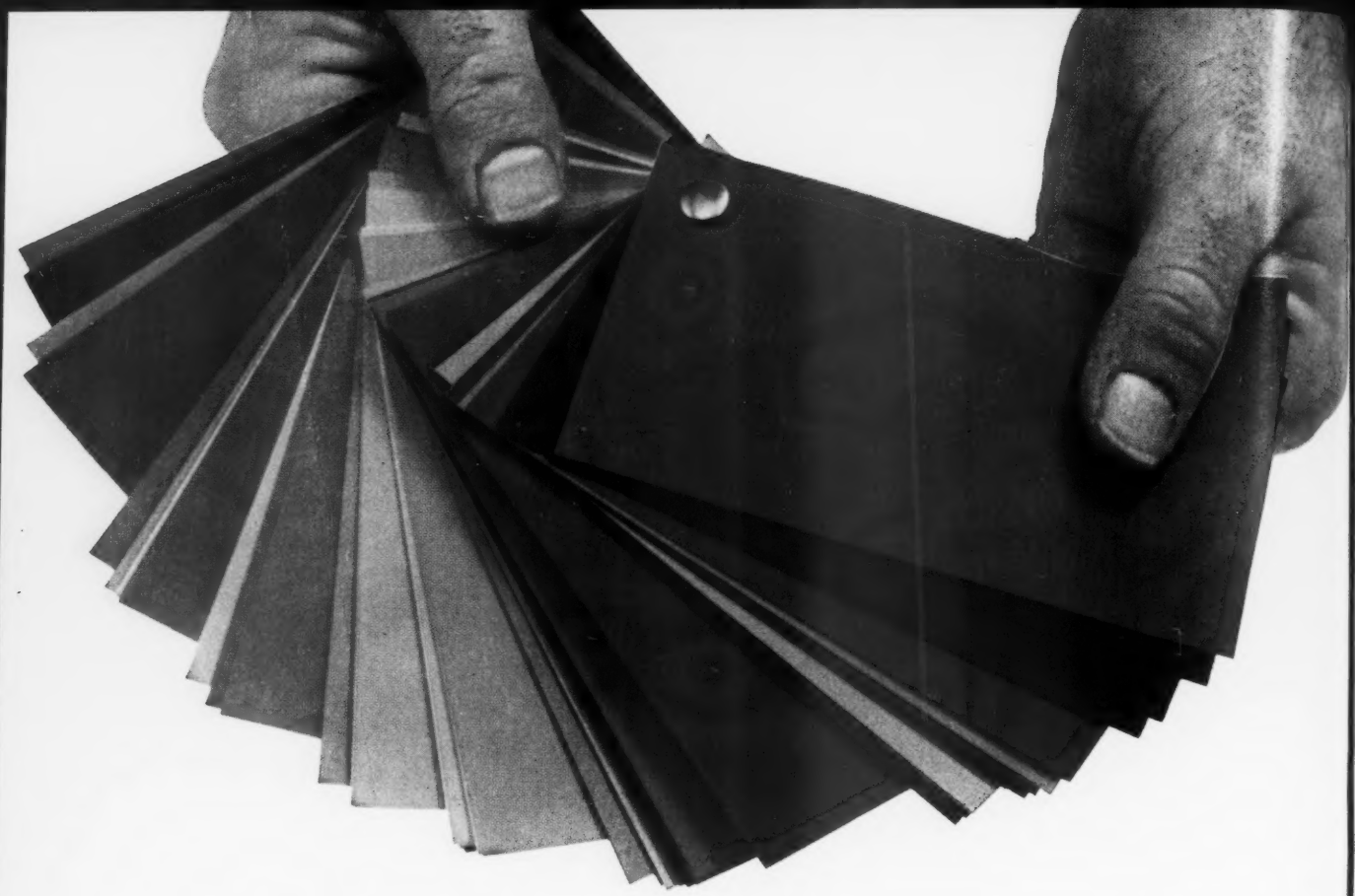
Packaging and Selling

The Slideomatic Lipstick Case,
new in conception, simple, and unusually inexpensive, consists of three pieces—metal outer and inner shells and a small plastic cup to hold the lipstick. The inner case slips out of one end of the outer tube and into the other, to extend the lipstick, which is fully extended in use, hence of special shape to prevent breaking. It is being manufactured by the Eyelet Specialty Division of International Silver Company.



from Acorn to Zinc

and every color in between . . . yours for the ordering at IMCO. When a certain color sells your product, you want *that* color . . . not a substitute. IMCO reproduces exactly the color you want, every time.

Perfect color reproduction is just one more example of guaranteed IMCO qualities which save you time and money. IMCO containers are guaranteed to match your specifications so closely that production lines never jam due to dimensional variations.

IMCO containers are guaranteed to match your weight specifications so closely that they always hold exactly the proper amount . . . no more and no less. And IMCO containers are just one fifth the weight of comparable glass containers . . . to reduce shipping and packaging costs.

Every IMCO job is performed with high-precision control and exacting consistency to produce the finest containers possible . . . at the lowest possible cost.

For complete information about putting your product in a tailor-made IMCO container, contact the IMCO representative nearest you today!

IMCO

CONTAINER CORPORATION

75th and Cleveland Streets, Kansas City 30, Missouri

Manufacturing Plants:
Belvidere, New Jersey
Toronto, Ontario, Canada
Excelsior Springs, Missouri
Harrisonburg, Virginia

Sales Offices:
New York, New York
Chicago, Illinois
Los Angeles, California
Toronto, Ontario, Canada
Memphis, Tennessee

MEAD JOHNSON'S CORPORATE IDENTITY PROGRAM

A vast package re-design program is about to be completed by Mead Johnson and Company, the Evansville, Indiana pharmaceutical house.

The new packaging, of over 400 items, has been developed within a broad "corporate identity" program that has been in the works during the past two years.

One of the interesting aspects of the new basic design is that it breaks away from a strictly medicinal appearance, with what designer Robert Sidney Dickens calls "a cheerful, healthy look." Bright coral and white are the predominating colors in the new packaging, signalling a departure from the gray, buff and dark blue formerly used by the company.

Mead Johnson packages before the coordination of designs.

New Dextri-Maltose containers using white (1), blue (2), and coral (3).

Besides giving Mead Johnson packages a more attractive appearance, the design has solved many problems in the area of product identification. With the use of visual symbols, the packages convey immediately the dosage form of the product, the manner in which it is administered (by drop, spoon, capsule, tablet, etc.), or, in the case of formula products for infants, the age group for which the product is intended.

This new ease in product identification is important to retailers and consumers alike, and is especially helpful in the company's extensive foreign marketing program.

The change in packaging, as has already been indicated, has its origin in the corporate identity program through which this nutritional and pharmaceutical manufacturer seeks to get across to its varied audiences—consumers, physicians, hospital personnel, retailers, employees and others—the qualities identified with the company, including integrity, progressiveness, service, individuality, quality, and warmth.

Expressed first in advertising and promotional pieces, the corporate image has been linked with a simply designed symbol consisting of an abstract white flame set against a black square. Developed by Taylor Poore, of Chicago, in collaboration with Mead Johnson's design department, this symbol has been incorporated into recent institutional and product advertising.

New packages showing dosage form in upper left corner of each.

The job of relating the company's packaging to the newly expressed corporate image was handed to Robert Sidney Dickens of Dickens Incorporated, a Chicago industrial design firm. In working out the program, Dickens operated in close collaboration with Mead Johnson personnel, notably, Lloyd L. Duke, director of design, and Charles Gnaegy, art director of the design department, marketing services section.

In approaching the project, the Dickens organization was governed by several factors:

When you market aerosols . . .

Count on Crown

The Crown Spra-Tainer, once an exciting novelty, is now a valuable marketing tool adding new glamor and convenience to a constantly amazing variety of products. Crown is the only source of both seamless and fabricated containers. Thick or thin, watery, oily or foamy—countless fluids, creams and pastes are reaching new market highs with aerosol containers. For expert technical assistance . . . not only in aerosols but in many other types of cans, in closures and in filling machinery . . . Crown's valuable experience is at your disposal.

The pioneer in aerosol cans . . . Crown has more aerosol container experience than any other company in the world.

CROWN

for cans · crowns · closures · machinery

CROWN CORK & SEAL COMPANY, INC., 9300 Ashton Road, Philadelphia 36, Pa.

"Basic" package has white background, "Comprehensive" has coral.

Blood administration set before (top) and after; note functional symbol.

(1) the corporate identity program and its objectives;

(2) the need for easier identification of the products and their forms, intended age group (where necessary), and the like;

(3) the fact that Mead Johnson's nutritional products were to be in packages differentiated from the packaging of the company's more complex pharmaceutical products;

(4) the trend toward increased self-service merchandising of non-pharmaceutical products;

(5) the fact that many of the firm's products are purchased by women, for themselves or for their children—this factor was considered important even though most such purchases are made at the recommendation of physicians; and

(6) the need for professional appeal.

Aided by these guide lines, Dickens developed a packaging program that satisfied the conceptual requirements of the corporate image program with packaging that would appeal esthetically to the professional, as well to as the consumer; that would "sell" in drug stores; that would be adaptable to self-service merchandising where appropriate; and that would be adaptable for over-the-counter sale, as well as through prescription.

The "flame-in-square" symbol is employed near the base of each individual package, whether it be carton, label or lithographed tin. To the right of the symbol is the name "Mead Johnson" and beneath it the theme, "Symbol of service in medicine." Because of the symbol's simplicity and the legibility of the type face used, this logo, or trademark, may be enlarged or reduced in size without loss in recognition. The same clean-cut *sans serif* type face is used for each individual product name and supplementary designation of product form.

The combination of contemporary type styling and design simplicity with vibrant colors gives the packaging a clean, fresh, professional appearance, suggesting the high quality of Mead Johnson products.

The key background color is white for the main panel, flanked by panels of coral, with type and illustrative material appearing in black and coral. Functioning to differentiate certain packaging by color, this scheme is sometimes reversed, so that the background color is coral or blue, with copy in black and white. Top and bottom panels of cartons are black, giving high contrast to the white and coral panels.

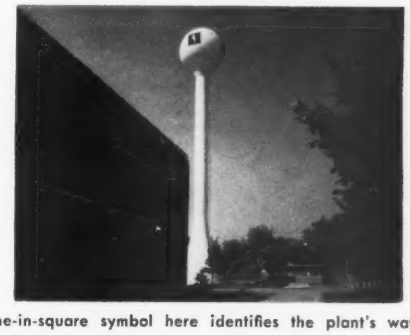
While achieving the above aims, the new packaging design also more readily identifies the product form. Here is how this was done. Take a product made in two major variations, for instance, Natalins —pre-natal tablets, which comes in a "basic" formulation and in a "comprehensive" formulation. The simpler form, Natalins "basic," is identified by the standard white background with black and coral copy, whereas Natalins "comprehensive" is set off by reversing the coral and white. Result: instant recognition of one variety against another.

When a third variation is involved, as in the case of Dextri-Maltose No. 1, No. 2, and No. 3, blue is used for one of the varieties, with the resulting color scheme: Dextri-Maltose No. 1 has a white main panel with black and coral copy, and coral flanking panels; Dextri-Maltose No. 2 has a blue main panel with black and white copy, and white flanking panels; and Dextri-Maltose No. 3 has a coral main panel with black white copy, and white flanking panels.

When shown on a retailer's shelf in these varieties, the containers with their complementary colors make a beautifully bright and attractive display.

A point of confusion for clerk and consumer has often been that of selecting the desired form of a given product. For instance, Mead Johnson makes many products available in different forms, to be administered by drop, spoon (suspension), tablet or capsule. The new packages convey the idea of how each

(*Continued on page 693*)



The flame-in-square symbol here identifies the plant's water tower.

GLASS STIMULATES SALES
The graceful contours and pleasing proportions of our new 443 stock bottle make it an outstanding container for your finest products. With an attractive fired-on label it makes a cosmetic package of unquestioned beauty.
443
Toiletries
CARR-LOWREY GLASS CO.
Designers and manufacturers of fine glass containers
Factory and Main Office: BALTIMORE 3, MD. • New York Office: 415 MADISON AVE. • Chicago Office: 1572 MERCHANDISE MART

Packaging and Selling

Why is it that people in marketing are such eager beavers for statistics even though, for the most part, they know perfectly well that statistics have very little authentic value?

This is particularly true of advertising agents who, we suppose, are under pressure from their clients to support a recommendation with a mass of figures, no matter how valueless these figures are.

The trouble is that too often such figures, as well as the way they are used, lead to a completely wrong conclusion. For instance, the craving for an average figure to apply to a specific situation which bears no relation to an average.

It is like the old story about the man who drowned crossing a stream that was an average of 18 inches deep.

Just a short time ago we received a letter from a sales organization asking for information regarding the average selling expense ratio of leading manufacturers of cosmetics.

Now, it is easy to work out an average ratio of selling expense for cosmetic manufacturers but, as applied to any one specific manufacturer, this information would be useless, misleading, and dangerous as a basis for making any conclusion or taking any action.

For instance, the chief ingredient in the selling expense of manufacturers, at least in cosmetics, is the cost of the field sales force. A leading soap manufacturer with a very large business in cosmetics and toilet articles, who supports this huge sales volume by very heavy advertising, reports a minimum of 3 per cent and a maximum of 4 per cent for the cost of this sales force.

Another manufacturer with a substantial volume on advertised cosmetics says that his field sales force costs 5 per cent.

Still another, operating on a broad but selected distribution with some department store business, a few demonstrations, and moderately heavy advertising, estimates the field selling cost to be between 12 and 14 per cent.

Many of the smaller companies, particularly in the perfume field, will cost 15 per cent or more.

So, what would it mean to give an average figure on the field-selling cost when it is so obviously tailored to the specific type of operation?

In addition to this, no two cosmetic manufacturers seem to do the same kind of bookkeeping. Some charge the home office sales executive staff to administrative overhead, others to the selling expense. There is tremendous variation in the way P.M.s, demonstrators, and other expenses for the retailer are charged.

The answer to a question of this kind requires a detailed study of typical companies in the industry, an understanding of the different types of operations in the industry and, then, an intelligent application of this knowledge to one specific way of doing business in the cosmetic industry.

We also receive frequent inquiries as to the amount of money spent for advertising by perfume and cosmetic companies. The question is, usually, what percentage of sales cosmetic or perfume companies usually budget for advertising.

Here again the variations are endless, with a complete lack of formula. A few years ago when an advertising agency owned a well-known lipstick brand, the agency president, who was also the president of the lipstick company, announced that he was spending 50 per cent of sales for advertising. In this industry, advertising expenditures may run from zero, as is the case with a well-known perfume company, up to 30 or 40 per cent.

The real problem here is the fact that almost everybody has a different idea as to what should be charged to advertising. In the case of many cosmetic companies, the advertising budget includes items that would normally seem pretty unrelated to the orthodox ideas of advertising.

Still another figure-hungry question which we frequently get is in the field of distribution. A considerable number of people are always popping up, particularly in the marketing department of advertising agencies, who seem to think they would have acquired a good, solid, useful fact if someone would only tell them what percentage of the cosmetic business is done, for instance, by department stores.

We remember some years ago, when a famous drug corporation bought a perfume company, that the president of the drug company was shocked to find that less than 15 per cent of their business was coming from retail drugstores, and all the rest was coming from department stores, some of whom were heavily subsidized by such things as a manufacturer-paid demonstration system. This president immediately demanded from his marketing organization the figures on the average percentage of cosmetic and perfume business done by department stores, chain drugstores, and retail drugstores and, when he had at last assembled what could be called an average figure for these different retailers, he sent to the perfume company a firm order that it should properly balance the business in accordance with those figures.

As might be guessed, the perfume company and the drug company somewhat later decided they would be

Ucon brand propellants put action in products

Why don't you discover Ucon *Propellant service, too?*

UNION CARBIDE CHEMICALS COMPANY
Division of Union Carbide Corporation
30 East 42nd Street, New York 17, N. Y.

UCON and UNION CARBIDE are registered trade marks of Union Carbide Corporation

happier completely away from each other's way of thinking.

As with the other two fields of interest in statistics, nothing could be more personal and individualistic a problem to a company in this trade than the kind, type, and number of retail stores which make up the pattern of their distribution. As much as anything else that enters into the operation of a perfume or a cosmetic company, the particular pattern of distribution for a company makes up the company image, or the company's vivid personality.

Every successful company in this industry, for instance, Charles of the Ritz, Guerlain, Elizabeth Arden, Rubinstein, and Shulton, has a vivid image of which its form of distribution is a vital part.

So far as the department store goes, one extremely successful cosmetic company makes it a publicized part of company policy to sell to no other outlet than department stores. There are endless successful cosmetic companies whose business with the department store is zero, or so trivial as not to be rated a factor in their marketing policy. In between, there is every conceivable variation.

We reiterate again that, in looking for figures, nothing could be more dangerous than the quest for average figures or the superficial application of such figures to the highly individualistic problem of cosmetic marketing.

Of course, figures, market data, and information are useful tools in market planning, but they are only useful when their very severe limitations are clearly understood and when they are applied with crossed fingers to that highly individualistic operation which makes up a successful cosmetic or perfume company.

Advertising and marketing men are critically concerned with the type of reader of magazines, but not so concerned with the place of purchase of these readers.

In a recent survey, *Vogue* found that 81 per cent of its readers buy beauty products in department or specialty stores. The elementary conclusion is not to buy *Vogue* no matter how valuable the circulation and reader interest may be to you, unless you have or are shooting for department store distribution.

Here's an interesting statement on the expanding American market.

"Earnings of the Negro worker have increased four and one-half times and the spendable income of the Negro community has increased more than five and one-half times since 1940."

A lot of sales managers are predicting a change in American marketing, and quite a few believe that the product itself is going to obtain new prominence.

Philip J. Kelly, president of the Sales Executives Club of New York, recently warned sales managers to "sell the product, not the price."

He continued, "The public is tired of extravagant claims, phony deals and double-jointed price offers. The welter of claims and counter-claims has made shopping difficult and time-consuming."

There is a maker of hats who does not see why self-service should be limited to retailing. In fact, he is so sure that a manufacturer can sell on a self-service basis that he has fired his entire sales staff and dropped his jobber distribution.

In regard to salesmen, this manufacturer asks, "Are they really needed to persuade a buyer to order a well-styled, well-made product which offers real value to the consumer and can be sampled through the mail very easily?"

Of course, his thinking goes a little bit deeper than that. For instance, this manufacturer figures that he can provide his quality product under comparable competitive merchandise at 20 per cent less retail price and, at the same time, provide the store with a markup of from 45 to 48 per cent as compared to the customary 40 to 42 per cent.

In addition to copying all the good ideas of the supermarket and self-service, it seems to us that this manufacturer is also turning in the direction of another retailer, the discount house. This looks like just another possible set of grievances for fair trade.

The Better Packaging Advisory Council has come up with what they claim is the largest packaging poll ever undertaken in this country, in which 250,000 consumers participated.

In this poll the best ten packages were selected. Two from our industry were included, Dial Shampoo and Satin-Set Pin Curl spray.

We have just received a very interesting letter from J. C. Gwynne Ellis, managing director of Cyclax in New Zealand.

His letter was partly in response to our remarks in this department about the white lipstick. Here is what is happening in New Zealand, according to Mr. Ellis.

"The white lipstick, incidentally, is, so far, a complete flop in New Zealand and, I am reliably informed, virtually the same in Australia. We, Cyclax, at my instigation, introduced the red and white split lipstick idea to New Zealand this last May and our Australian Associate Company, on the same day, did likewise in Australia. In New Zealand we forestalled the appearance of the white lipstick and in Australia more or less coincided with it. Our New Zealand experience with the red and white lipstick has been most interesting. Its initial sales as a gimmick were quite sensational bearing in mind the size of this market, but repeat business is almost negligible. It appears that to the feminine mind the gimmick aspect has little, if any, appeal whilst the basic idea of a split stick is considered to be 'fiddling and

messy.' On the other hand, the impact upon male Store buyers and executive controllers was terrific which shows, if nothing else, the difference in the appeal of gimmicks to men and women."

The Climate of Persuasion is the title of a very interesting booklet containing a study of the public image of advertising media made by the *Richmond Times-Dispatch* and the *Richmond News Leader*.

This is a study of the public image or, to be more specific, a combination of the personality factors of the three principal types of advertising media, that is, the newspaper, radio, and television.

But even more interesting to us is the thought that it is also a study of the public's image of any form of selling. For this reason, it occurs to us that this would be an excellent basis for appraising an individual salesman or a sales force.

At the beginning of the booklet the statement is made, "Whether a sales message is delivered in person or through an advertising medium, its primary purpose is the same—to persuade others to buy.

"The first step is the delivery of the message. It cannot accomplish anything until it is received.

"But there is a second and equally important element which is inherent in the persuasive process itself. A subtle blending of rational argument and emotional appeal, persuasion is perhaps the most difficult part of the complex art of communication.

"In terms of persuasive impact, the sales message cannot be divorced from the communicator who transmits the message. As every sales manager knows, the personality of a salesman is a critical factor in his relative efficiency.

"All of us know the reason for this from everyday personal experience. By whom are we most readily persuaded to do anything? Clearly, by those we like, who hold our interest, whose judgment we respect, whose integrity we rely upon. In brief, by those we like, admire, respect and trust.

"If a salesman has these qualities, he will be more persuasive and more effective than another salesman, although the product and the sales message are identical in each case."

Here is the rating index used by these newspapers in their extensive survey to determine the personality factors or the over-all image of the three different kinds of advertising media. For each of these personality factors the two opposite extremes are listed. Between each of these two extremes are ten intervals, which each person interviewed was asked to check. This determined how close to each of the two opposites each respondent rated the personality.

Below is the table of 24 opposite characteristics with a rating index of ten checking points favoring the choice of each opposite. Perhaps you would like to check some of your salesmen against this personality index. You might even get interested enough to check yourself.

Aloof	Friendly
Untruthful	Truthful
Careless	Careful
Prejudiced	Unprejudiced
Immoral	Moral
Unintelligent	Intelligent
Dreary	Cheerful
Fearful	Courageous
Distant	Neighborly
Deceitful	Trustworthy
Superficial	Thorough
Intolerant	Tolerant
Irreligious	Religious
Poorly educated	Well educated
Unattractive	Attractive
Weak	Determined
Cold	Sympathetic
Dishonest	Honest
Inaccurate	Accurate
Unfair	Fair
Unscrupulous	Scrupulous
Poor judgment	Good judgment
Dull	Interesting
Easily influenced	Independent

Advertising agencies recently heard some blunt facts at a meeting of the Point of Purchase Advertising Association. Here are some of the things that were said by leaders in the point-of-purchase display field.

"I think medium-size agencies are best qualified to handle point of purchase projects. They are most likely not going to be over-imbued with an exaggerated sense of self-importance."

Here's another quote: "There is still a reluctance on the part of many agencies to enter the point of purchase field completely, because of pure economics. Where mechanical costs on other media would run only about 10 per cent, point of sales represents almost 100 per cent, and they just about trade dollars on mechanical."

Here's a beaut! "In 19 years I have dealt with 27 agencies and in those 19 years I found one man in those 27 agencies who understood the problems of selling and merchandising."

This is just about the same condition that most trade magazines find in dealing with agencies.

It seems to us that all of this adds up to a very important indictment of the present system of agency renumeration.

George Romney, who has certainly done much for the automobile industry through original thinking, has recently been jumping on the consumer appliance business for trying to achieve more volume at any price. Some of the things he had to say might be pondered over by a lot of other business men. For instance, "We have been defeating ourselves in the appliance business by trying to resolve a temporary overcapacity problem by forced consumption, mainly

through subsidizing both wholesale and retail product movement, and thereby demoralizing both the wholesale and retail function.

"This has had little effect on the consumer other than to sell to those who would have bought anyway, at prices lower than we could afford and still expect to maintain competitive vitality.

"The more we have tried to force consumption, the more nakedly have our motives appeared in their true colors as the mere desire for more sales and higher profits.

"How many innovations and new products have we failed to produce, that might already be on the market, offering genuine new consumer benefits, if the energies and resources of the appliance industry had been devoted to product creativity instead of promotional charlatanism on behalf of the same old product?"

Maybe a good rule in business is never to terminate a termination. This brilliant thought occurred to us in reading a recent statement by an executive of Park & Tilford, "We did have a gourmet food line many years ago but terminated it," he said. "However, that does not mean we have terminated consideration of reentry."

The vending machine industry is still expanding. In a comparison of 15 typical vending companies, total sales rose from $13.3 million in 1952 to $24.6 million in 1958. However, average net profits before income taxes slipped from 2.56 per cent of sales to 2.46 per cent.

A very interesting expansion of the roll-on package application principle are the two products of Reese Finer Foods, Garlic Oil and Liquid Smoke.

These two extremely attractive bottles with large roll-on applicators are for barbecue and salad use.

Spot radio, which is said to be rapidly becoming a "measured" medium, had drugs and cosmetics as the second biggest user for the first half of this year. This classification spent $7,195,000.

Listed among the big spot users were Thomas Leeming & Co.; Bristol-Myers Co.; B. C. Remedy Co.; Chattanooga Medicine Co.; Plough, Inc.; Miles Laboratories; The Gillette Co.; Chesebrough-Pond's, Inc.; Sterling Drug, Inc.; Pharmaco, Inc.; and Pharma-Craft Corp., Inc.

According to mid-year statistics just issued by H. P. DeVilbiss, president of The DeVilbiss Company, perfume atomizer sales are up 300 per cent for the first half of 1959 and 500 per cent over a similar period in 1956.

Perfume atomizer units for 1958 were estimated to be in the neighborhood of 1,500,000 units.

According to Mr. DeVilbiss, the reason for this increase is "better value for the money, with finer, more efficient mechanisms and beautifully styled glass and ceramic containers, many of them imported."

As a matter of fact, anyone who has seen the display of DeVilbiss atomizer containers, particularly some of those imported from such places as the Islands of Murano, near Venice, Italy, where glass blowing has been under the same family management since before Columbus discovered America, has been impressed by the beautiful range of atomizers available for the American woman's boudoir.

The drug industry seems committed to a continuing competition with the food industry, or is it vice versa?

Medical research has found some excellent markets in diet supplements and a broadening field of medicines among the calorie-conscious and cholesterol-conscious part of the population.

Now the food industry is striking back. By capitalizing on a health issue, it is plunging into this general market with a type of scare copy that the pharmaceutical industry has never dared to use.

While the Federal Trade Commission has been watching this development from the sidelines, something may be about to happen because, we understand, both the F.T.C. and the Food and Drug Administration have been asking for information from the Nutrition Foundation.

Here we are again, after a lapse of nearly 20 years, with one of the big soap companies giving a perfume premium.

Twenty years or so ago, Procter & Gamble came out with a vial of perfume prepared for them by the private-label department of Avon Products, which this huge soap company offered in a national sales contest for one penny. We forget how many millions of these vials were distributed, but it was an enormous promotion that cleaned out a lot of high-priced inventory for Procter & Gamble, and momentarily left their competitors gasping.

The other soapers tried to get up steam on something similar. One tried perfume and another lipstick, but nothing came of it.

Now we hear that Lever Brothers intends to sell a flacon of Jacques Fath perfume called Fath de Fath and valued at $4.95, by making it available for $1.00 and the end flap or price disk from a carton of Pepsodent toothpaste.

Trademark names that sound alike, even though the spelling is very different, are dangerous things in which to invest very much money.

A relatively small company with the trademark "Jeenie" have just won a federal court decision stating that Colgate's "Genie" was in conflict.

Aerosol Perfumes

are on the move!

Sales up 518% in 1958 over 1955!

Reason: the magic touch of aerosol packaging makes perfumes and colognes easier to apply... eliminates loss from evaporation, spillage, leakage and breakage.

Aerosol perfumes and colognes are moving fast! Last year, sales shot up to 28 million units—a 518% increase over the 5.4 million units sold as recently as 1955.* And the trend has just begun. The push-button convenience of modern pressure packaged perfumes and colognes . . . the elimination of loss from evaporation, spillage, and breakage . . . have proved tremendous sales advantages. An aerosol perfume won't leak. Every woman can now *safely* carry perfume in her purse . . . have it with her wherever she goes.

If you're interested in aerosol perfumes and colognes, follow the course of so many successful aerosol marketers—take advantage of the special services General Chemical puts at your disposal.

How General Chemical can help you

As one of America's leading producers of aerosol propellants, General Chemical can give you valuable technical information which will help you determine the proper aerosol propellant compatible with your perfume or cologne. We will supply you with the latest aerosol market information. We can show you promising new types of aerosol formulations developed in our laboratories. And we can give you information on how contract fillers can help you, from test marketing right through to full commercial production. The fact is, through the use of contract fillers you can get into aerosols quickly and efficiently—*without any outlay on your part for plant, special equipment or personnel!*

Why not take advantage of these valuable services from General Chemical *now*? Call or write us today for a confidential discussion of your requirements.

*Estimated by Market Surveys Department, General Chemical Division, Allied Chemical Corporation

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Putting the "push" in America's finest aerosols

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Colonial packaging with the new Du Pont polymer-coated cellophane provides a diamond bright sparkle that adds new luster and sales appeal to your product. It provides greater durability and protection—the kind that adds extra weeks and months to "shelf life." The new "boat packs" are available as well as standard wraps. All wrapping and printing is completely automatic—whether in cellophane, foils, glassine or other materials—insuring swift delivery.

Colonial's wide range of services include silk-screening and hot-stamping of dropper calibrations and special designs, a creative art service, and a complete stock of caps, bulbs and droppers. Free samples made to your most exacting specifications.

Specialists in Glass or Plastic Droppers and Assemblies for Nearly a Quarter of a Century

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VINELAND, NEW JERSEY

News in Packaging . . .

New Glass Blocks Undesirable Light

A new type of glass that efficiently blocks violet and ultra-violet light has been developed by Owens-Illinois Glass Company. Called "Ultrasorb," the glass is said to reduce more than 80 per cent of violet and ultra-violet light transmission, while at the same time it maintains a color well within the standards for regular emerald green.

Ultrasorb bottles are now in production at company plants in Fairmont, West Virginia, and Streator, Illinois, and a third on the West Coast is to begin shortly.

Although the initial use of the new glass is in the beverage industry, the firm expects it to have wide use in the drug industry as well.

Stephan Using Embossed Bottles by Hazel-Atlas

The Stephen Cosmetic Corporation is now packaging its shampoo and lotion in embossed, clear glass bottles by the Hazel-Atlas Glass Division of Continental Can Company.

A square-within-a-square molded into the glass appears at the bottom of the half-pint size, at the shoulder of the pint size, and also, on the company's dandruff remover bottle at both sides. The shampoo containers have white plastic tops and white ceramic labels printed directly on the glass. The lotion has an aluminum cap by Alcoa, and a three-color ceramic label. All are sold through barber shops only.

Package Designers Meet

The Package Designers Council recently held its seventh annual meeting at the Hotel Gotham, New York City. During the gathering, Karl Fink, head of Karl Fink and Associates, industrial designers, was reelected president. (For other officers, see page 653 of this issue.)

Besides the election of officers, the Council held a discussion of the Museum of Modern Art's recent show, "The Package," following addresses by Mildred Constantine, associate curator of architecture and design at the Museum, and Walter P. Margulies, president of Lippincott and Margulies, Inc. The board of directors also granted a charter for the formation of a Midwest chapter.

In his address, Mr. Fink stressed the growth in membership of the council, which has increased 21 per cent in the past year, and the expansion of service to educators, students, new members of the profession, and staff designers.

Beer Bottles to Boom Bricklaying?

An East-German brewery has devised a beer bottle in the shape of a brick with a caved-in bottom into which the neck of the next brick bottle fits accurately, in case anyone wants to build a garage or a house after a round of the contents thereof.

The brewers, Radeberger by name, feel they will alleviate disposal problems, encourage construction, and increase beer consumption.

Flavored Bayer aspirin for children, from the Glenbrook Laboratories Division of Sterling Drug, now with a tamper-proof cap of polyethylene. Additional protection is provided by individual cellophane wrap for each package.

Clairol Reception Room Acquires a Light Mobile

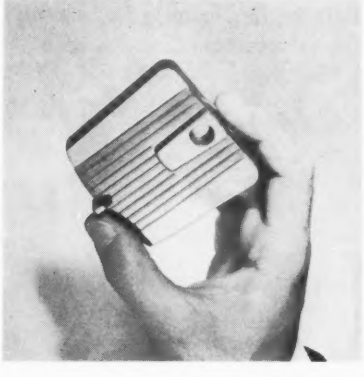
At the new offices of Clairol Incorporated at 666 Fifth Avenue, New York City — the Tishman Building—one can witness Opus 152, a light mobile by Thomas Wilfred, which projects moving colors on a ten-foot screen, giving the illusion of an abstract painting being created in space. The color constellations run for one year, 34 weeks, 22 hours, and 10 minutes, and then start over again, exactly repeating the composition.

The Lumia composition, as this art form is called, is titled Study in Depth. Others by Mr. Wilfred are in the Museum of Modern Art, the Metropolitan Museum of Art, and the San Francisco Museum, as well as private collections. Mr. Wilfred performs some of his works in person on an organ-like keyboard. He played his first recital at the Neighborhood Playhouse in New York City in 1922.

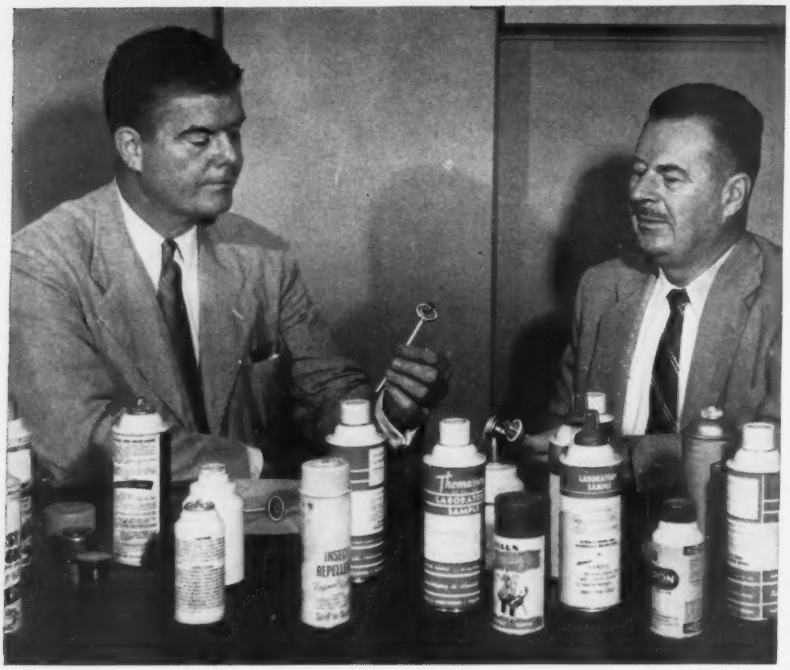
Shulton's "Short Cut" in a 2-ounce glass jar by Hazel-Atlas with red, gold and white metal cap by Sterling Seal. Ice-O-Derm has clear jar, same shape, size by Hazel-Atlas, cap by Armstrong Cap Co., screening by Permanent Label.

Merck Sharp & Dohme Tetravax vaccine bottles enclosed in tight-fitting Tulex (by Eastman Chemical Products Co.) extruded plastic container with cut-out for dating bottle directly. Manufactured by Extruded Plastics, Inc.

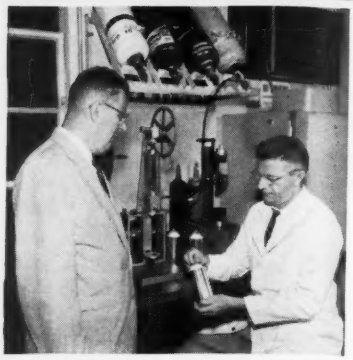
Tepanil weight-reducing tablets by National Drug Company in a sample package for physicians, which is a miniature replica of a bathroom scale made of polystylene self-locking parts, by Precision Plastics Company.



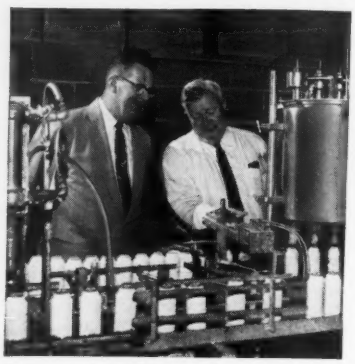
The contract packager had the answer... a success story from the ISOTRON file



STYMIED by unfamiliar problems in connection with marketing his line of products in aerosol packages, the marketer finds the technical assistance he needs in the office of James Bampton (left above), president of Thomasson of Pennsylvania, Inc., of Norristown, Pa., one of the nation's leading aerosol contract packagers.



In this laboratory at Thomasson, technologists work out formula adjustments in the marketer's product to adapt it for aerosol packaging.



The marketer and the production manager watch the first run of the new aerosol-packaged product on one of Thomasson's high-speed loading lines.

man with the right answers for profitable aerosol packaging

No one knows for certain what the next aerosol-packaged sales success will be. But you can be sure that the highly specialized skills of an aerosol contract packager will have a useful hand in helping move the product to market. The packager supplies invaluable advice on product formulation, can and valve selection, and propellent choice. It is a fact that leading packagers rely on Pennsalt Isotron® propellents to help their customers cash in on the aerosol market.

Pay-off of Thomasson's special knowledge comes for the marketer's product at store displays like this. Aerosol packaging brings new volume and profits.

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PENNSALT CHEMICALS CORPORATION
Three Penn Center, Philadelphia 2, Pa.

NEWS and VIEWS

BY TED KLEIN PUBLIC RELATIONS DIRECTOR*

Numbers

Last year the 85 medical schools in this country graduated 6,895 physicians. Our 47 dental schools gave diplomas to 3,083. The 1,145 schools of nursing graduated 30,410 nurses.

While these numbers may seem comfortably large, they are indicative of real shortages in vital members of the health team. The U. S. Department of Health, Education and Welfare reports that unless something drastic is done, the ratio of these scientists to population will drop substantially.

For the past 20 years there have been about 131 to 135 physicians to every 100,000 U. S. citizens. This will drop to 126 to every 100,000 by 1975. With our expanding population, we will need an additional 3,000 medical doctors by 1975, just to keep the present ratio.

We all know a similar lack of trained individuals exists in dentistry, but the Health, Education and Welfare report recently issued tells us that we will need 75 per cent *more* dentists by 1975 if we are to maintain the present ratio of 62 per 100,000.

It seems to me that possibly another phase of this problem should come under consideration. Of course, we all admit the need for more trained doctors, nurses, and dentists; but why not help the ones we have to speed up their efforts?

It takes millions to expand existing schools and, then, it will be most difficult to staff the new facilities with teachers. When you hire a medical school teacher, you take another individual out of practice, and thereby contribute to the shortage you wish to alleviate. There must be ways in which automation, time study, and advanced engineering can be used to accelerate and improve existing methods of treatment and diagnosis of patients.

Perhaps what we need is not so many new health experts, but better ways for them to use their time. After all, as the population increases and the ratio of doctor or dentist to poulations decreases, we will have to do something to let the professional man get more out of his already overworked and overcrowded day.

I'm not aware of any intensive effort under way to give the medical and dental profession help beyond that of more trained members. I suggest that the pharmaceutical industry, which is rarely at a loss in solving complicated problems in manufacturing, help solve these problems of medical practice.

Direct Mail Winners

Of the 58 direct-mail campaigns cited in the recent awards made by the Direct Mail Advertising Association, pharmaceutical companies were able to win four.

Abbott Laboratories, Lilly, and Schenlabs were cited as leaders in direct mail. And Abbott and Pfizer received awards for their outstanding house publications, *What's New*, and *The Pfizer Scene*, respectively.

Pfizer at the Fair

Formula for a successful public information program on veterinary medicine: one part animals and one part veterinarian, mixed well before a closed-circuit TV camera, and then sent to TV receivers throughout a large public place, like the Eastern States Exposition at Springfield, Massachusetts.

Formula for a successful professional relations program for a veterinary organization: provide the personnel and the funds for the above, to make the closed-circuit TV program possible.

Such a program has recently been carried out. The principals were The Massachusetts Veterinary Association, and the Department of Veterinary Medicine, Pfizer Laboratories.

For each of the nine days of the Eastern States Exposition (1959 attendance in excess of 500,000), Pfizer arranged for complete TV facilities from 3 to 6 p.m.; consequently, about 50 veterinarians were able to program public information "shows" to the visitors at the largest fair in the East.

During the course of each program day, New England veterinarians ran about 25 different TV shows on subjects as varied as "How to Use a Portable Milking Machine on a Cow" and "A Career as an Air Force Veterinarian." The audience was invited to watch the programs at this source, or to view them in a 250-seat theater or on TV sets located throughout the 175 exposition acres.

The veterinarians were most enthusiatic. They found they needed no preparation other than brief interviews with their guests, who were recruited from the many exhibits at the exposition. They also found that, by and large, veterinarians perform exceedingly well before a TV camera with a microphone in hand.

The public welcomed the programs; thousands took advantage of this first-hand chance to see how veterinary medicine works, as reflected in the interviews with animal owners, 4-H youngsters, and others who came to Springfield to take part in the Eastern States Exposition. They saw, moreover, a public information project jointly sponsored by the veterinary profession and a pharmaceutical manufacturer.

During the course of the TV programs, Pfizer wisely refrained from any commercial message. Instead, it was announced briefly on the air that "these closed-circuit TV programs are brought to you by the Massachusetts Veterinary Association in cooperation with the Department of Veterinary Medicine of Pfizer Laboratories." A similar message appeared on cards attached to each of the TV sets.

I think Pfizer deserves congratulations for such public service programing. Having participated, along with Ed Rasp from our company as production supervisor, I can testify to the willingness of the veterinarians in working on the programs. This sort of sponsorship is difficult to evaluate in net gain to the company footing the bill, but we feel that Pfizer will gain great prestige with the veterinary profession as a result.

As a part of the nine-day session, Pfizer also produced a 35-minute documentary film on how veterinarians can effectively deal with the press, radio, and TV, as well as how best to win increased recognition from the public. The film, produced on Video Tape, will be made available without charge to the public relations committee of any veterinary organization across the country. Here again is an extension of Pfizer's public relations efforts for the good of an important member of the health team.

*Paul Klemtner & Company, Inc.

Patent thoughts and trends

BY THOMAS CIFELLI, JR., PATENT ATTORNEY*

Medical Treatments Patentable

It often happens, when a theory is followed for a long time, that it takes such a deep-rooted effect on us that we lose sight of the fact that the theory may no longer be valid, even long after it has been discarded. This is true of patents as well as of other areas of knowledge. For example, the date of February 15, 1955 really marks the death of the old rule under which no patents relating to medical treatment were issued. Yet, even as 1960 approaches, many still labor under the belief that one cannot obtain a patent on a process for treating human beings.

Although the history of the development of the rule against issuing patents on medical treatments, as well as the development of exceptions to this rule, was considered in detail about six years ago in these columns, the lack of general awareness of the present situation by those who may benefit from the change is such that a detailed review of the matter appears to be in order.

The situation was revived, one might say, by the recent issuance of U. S. Patent 2,900,304, on August 18, 1959. This patent deals with Griseofulvin and covers compositions containing this material, as well as a process for their use. An example of the claimed process is shown by claim 1, taken from the patent.

"The process for treating man and animals having an external fungus disease which comprises internally administering to said man and animals an effective amount of griseofulvin."

Now, to consider the development of the rule regarding patents on treatment of human beings, we must go all the way back to 1862 for the beginning of the Patent Office policy against allowing claims covering medical treatments. That was the year in which Dr. Morton's discovery that the inhalation of ether produced insensibility to pain was held by the courts to be unpatentable. For a number of years the U. S. Patent Office was strict in its adherence to this rule. It seems that Dr. Morton had discovered the use of ethyl ether as a pain-desensitizer during surgical operations. The benefits conferred by that discovery upon the entire human race are beyond calculation. Dr. Morton succeeded in obtaining a patent for his method, but his patent was finally invalidated in court on the ground that his discovery was not a patentable invention because it did not come within any of the classes of inventions protected under the patent statutes. The court felt Dr. Morton had discovered a so-called law of nature, stating:

"A discovery of a new principle, force or law operating, or which can be made to operate, on matter will not entitle the discoverer to a patent. It is only where the explorer has gone beyond the mere domain of discovery, and has laid hold of the new principle, force or law and connected it with some particular medium or mechanical contrivance by which, or through which, it acts on the material world, that he can secure the exclusive control of it under the Patent Law. He then controls his discovery through the means by which he has brought it into practical action, or their equivalent, and only through them."

It is difficult for the writer to understand why the court didn't find that the use of ether was the *means* by which Dr. Morton brought his discovery into practical use. It is the feeling of the writer that perhaps the times were such that society generally did not take kindly to the idea that someone by means of patents could control, and presumably withhold, the use of ether for humanitarian purposes.

In point of fact it should be noted that, at the time Dr. Morton made his invention, ether was known, as was also the inhalation of it, other people having inhaled it before. It was also known that inhalation of the ether vapor produced an effect like intoxication and more or less stupefaction. In other words, Dr. Morton's contribution was his finding that inhalation of ether in increased quantities will produce a state analogous to complete intoxication, accompanied by total insensibility to pain. With this humanitarian contribution in mind it is difficult to see why the court did not uphold the patent.

The Morton decision, which is reported in the law books under the citation *Morton v. Infirmary*, 5 Blatchford 116, Fed. Cas. No. 9865 (1862), rightly or wrongly was the beacon by which the Patent Office and the patent bar were guided for many years. The traditional view of the U. S. Patent Office is perhaps best exemplified in connection with its holding in the case of *Ex parte Brinkerhoff*, reported in 24 Commr's. M.S.D. 349 (1883). This case involved a method of treating piles which consisted in certain manipulative steps including injecting an unspecified medicament. The patent examiner rejected the application on the ground that no patent was ever allowed for any curative process. On appeal, the commissioner stated that methods of treatment used by physicians were not patentable, characterizing them as discoveries not patentable under the Morton case ruling.

And so the story ran for many years, with only a crack in the Patent Office position here and there. About 25 years ago the Patent Office did allow a claim to the shrinking of living tissue in one case (U. S. 2,008,526) and to a method for creating artificial fever in human beings (U. S. 2,098,295) in another case. Of incidental interest may be the fact that one of the inventors named in U. S. 2,098,295 is Dr. Charles F. Kettering, the late automotive genius.

With the intensified research which has characterized the American drug field during the last two decades, a number of efforts were made to obtain favorable treatment for patents involving the administration of drugs to human beings. These efforts met with considerable opposition, and it was not until five or six years ago that real progress was

*Richards and Cifelli, Newark 2, New Jersey.

made. This turning point was the decision of the U. S. Patent Office Board of Appeals in the case of *Ex parte Scherer*, reported at 103 U.S.P.Q. 107. The importance of the decision is gleaned from the fact that, whereas the Commissioner of Patents himself very rarely sits as a member of the Board of Appeals and although the usual number of members sitting as a Board is three, no less than 11 members, including Commissioner Watson, sat in the Scherer case. In a ten to one decision, it was held that a claim to a method of injecting fluids into the human body in which the epidermis acts as a passive member is patentable. The dissenting member of the Board felt that the Morton case was authority for refusing claims to processes which in their practical aspects depend on the human body for success.

While the Scherer case did represent a long step away from the principle of the Morton case, it seemly still left open the question of whether claims involving the treatment of human beings *not* requiring manipulative steps outside the body were allowable.

This question was answered in the affirmative by the issuance of Reissue 23947 on February 15, 1955. The original patent, U. S. 2,596,069, was issued to Dr. Fox of Hoffmann-La Roche in connection with his Isoniazid antitubercular invention. Claim 21 of Reissue 23947, reads as follows:

"A method of combatting tuberculosis which comprises administering a composition comprising not less than 0.1 per cent of isonicotinic acid hydrazide to a human host infested with tubercle bacilli."

It will be observed that this claim is in no way restricted to any steps performed outside the human body.

One may well ask whether claims dealing with the treatment of human beings are of any practical significance. For one thing, it would seem that the only ones who directly infringe such claims would be either the physician or the patient and it would not be practical to sue either of these particular groups. However, a provision in the patent laws as revised in 1952 may be utilized to proceed against the competitors. In some instances as, for example, where the material being administered constitutes a material part of the invention and was especially made or especially adapted for use in the claimed process and is not what is called a staple article or a commodity of commerce suitable for substantial noninfringing use, a suit against the supplier of such material may be brought by a patent owner, even though the material itself may be unpatented.

Be that as it may, it can be seen that anyone who has invented a medical treatment is not precluded from obtaining patent protection thereon. Indeed, there is even authority for the proposition that the administration of a drug for one purpose does not prevent the issuance of a patent on a process for administering the same drug for another purpose.

The purpose of this article, as well as all others in this column, is not to give patent advice, but merely to appraise the reader as to matters which may enable him to cooperate better with his patent counsel.

Scentovision

If a certain patient Swiss inventor has his way, an entirely new area of business will open up for the perfume industry. Reference is made to the work of Hans Laube, who has labored long to develop a successful scented motion picture process.

If one is to believe the daily press, Mr. Laube's process and apparatus are to be given a public trial in Chicago in December by Mike Todd, Jr., son of the late showman. A comedy entitled "Scent of Mistery" is to be performed at the Cinestage Theatre, which is said to have been equipped already with the necessary apparatus to emit odors.

Apparently, the principle disclosed by Mr. Laube in his 1957 patent, U. S. 2,813,452, and the apparatus disclosed by Mr. Laube in his recent patent, U. S. 2,905,049, form the basis of the public demonstration, although this of course is not certain.

The underlying thought in Mr. Laube's process is to use perfumes which have either no fixitives at all, or substantially none. In other words, for the purposes of "Scentovision" the perfumes are compounded on a theory which goes contrary to normal perfume compounding. In order to make sure that a subsequent odor is not contaminated by a prior odor, Mr. Laube allows a pause for the second odor. This is said to do the trick in most cases. However, where the prior odor is very strong, Mr. Laube employs what he calls a neutralizer before emitting the second odor.

The apparatus patented by Mr. Laube is too complicated to consider in detail. In brief, however, Mr. Laube employs a limited number of standard scents carried in containers which are linked together and syncronized on a supply wheel with the movie film. At the proper times the proper containers are caused to emit the desired odors. Pumps, etc., are employed to mix the scents and send them throughout the theatre.

The whole idea of scented movies lends itself to a field day for wags. One cannot say whether Mr. Laube has a practical system as yet. There are many objections and obstacles which must be met before commercial success is attained. However, it would appear that strong encouragement should be given to Mr. Laube's efforts because out of such efforts might very well develop a whole new business for the perfume industry. It is not often that an invention creates an entirely new area of business without adversely affecting an existing area of business. In other words, if Mr. Laube's venture eventually proves successful, the perfume industry will get new business without sacrificing any of its present business.

Doctrine of Equivalents

Mention was made in the brief discussion of the Carter Products-Colgate litigation just preceding this item that Carter attempted to invoke the so-called Doctrine of Equivalents. This doctrine is a very important one and, it is believed, all too often overlooked by the average person. For example, it is very common for someone faced with a threat of an infringement suit to call his patent attorney and ask the latter to take a quick look at patent claims and give a quick opinion regarding infringement. While this seems to be a reasonable request, in many cases it does place the attorney in a very awkward position. He knows full well that there are many hidden dangers in giving such off-the-cuff opinions and the client's best interest would be served only by a thorough

(*Continued on page 699*)

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SALES OFFICES IN PRINCIPAL FOREIGN COUNTRIES

Left to Right: Harold E. Thayer, now executive vice-president of Mallinckrodt Chemical Works, and John R. Ruhoff, chairman of the executive committee of the board of directors of Mallinckrodt; Boris R. Anzlowar, director of the scientific information center—incorporating the medical and chemical libraries, and C. Victor Peterson, supervisor, package control laboratory, both of Ciba Pharmaceutical Products Incorporated.

NEWS . . .

An executive committee of the board of directors of the **Mallinckrodt Chemical Works** was recently formed, with Dr. John R. Ruhoff as chairman. The other members are Edward Mallinckrodt, Jr., Joseph Fistere, John E. Gaston, August H. Homeyer, and Harold E. Thayer. Mr. Thayer was also appointed executive vice-president of the company, a newly created post.

Boris R. Anzlowar, formerly with Eaton Laboratories Division of Norwich Pharmacal Company as medical editor, has been appointed to the newly created position of director of the scientific information center at **Ciba Pharmaceutical Products Inc.** The center will acquire and process information for Ciba scientists, and act as an exchange center for information between the American company and the parent, Ciba Limited, in Basle, Switzerland. It incorporates the medical and chemical libraries. Mr. Anzlowar was born in Trieste, and attended the University of Ljubljana in Yugoslavia and Columbia University. Another Ciba appointment is that of C. Victor Peterson, who is now supervisor of the package control laboratory. He formerly supervised package development in the methods and package development division.

John L. Slais has been appointed sales representative for the **Flavor Division of International Flavors & Fragrances Inc.,** in the mid-western United States, with headquarters in Chicago. Mr. Slais has been with the flavor industry for over 17 years in the St. Louis and Chicago areas.

The **Ansbacher-Siegle Corporation, subsidiary of Sun Chemical Corporation,** has appointed Gabriel Appleman plant engineer. Mr. Appleman was formerly director of engineering of Foster D. Snell, Inc. Before that, he participated in the planning of the present phosphatic and nitrogen fertilizer complex at the Haifa, Israel, plant of Fertilizers and Chemicals Ltd., where he served as assistant to the director of research and development.

Robert Treat Dann has been promoted from assistant director of marketing for **Roche Laboratories, Division of Hoffmann-La Roche Inc.** Mr. Dann was associated with McKesson & Robbins, Inc., before joining Hoffmann in 1954 as a representative. Also at Roche Laboratories, James Baxter McQuilkin, a division sales manager of the Pacific Northwest division since 1958, has been appointed to the newly created position of director of education. Mr. McQuilkin joined the company in 1953 as a sales representative.

B. Fainberg has been appointed general manager of **Dragoco, Inc.** Mr. Fainberg was formerly head of the company's International Division.

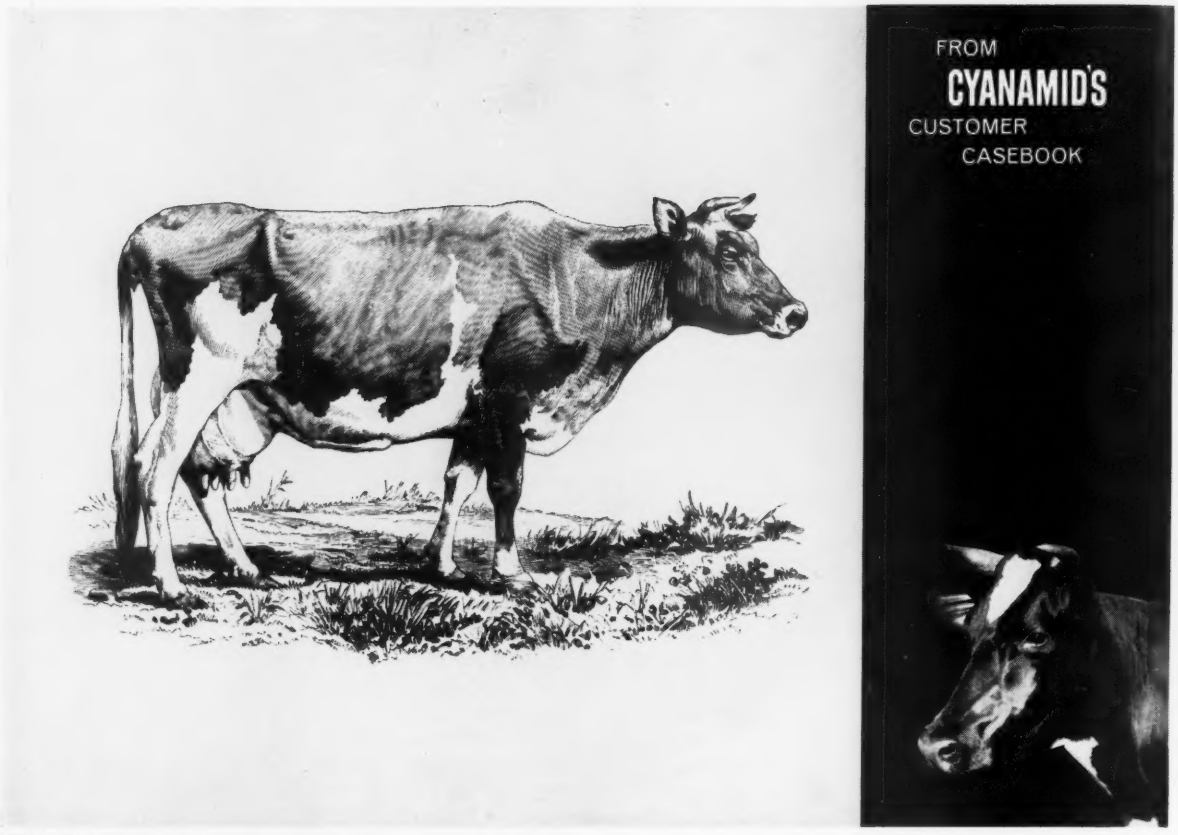
Mrs. Joan K. Danziger has been appointed to the marketing department staff of **Burroughs Wellcome & Company (U.S.A.) Inc.** She will be making statistical evaluations of budgets and sales trends and doing other similar statistical work.

Francisco Foz has joined **Miles International, Division of Miles Laboratories, Inc.,** as assistant medical director. Mr. Foz was born in Spain and there attended the College of San Miguel and the University of Barcelona School of Medicine, as well as the School of Medicine of Montpellier, France. Before joining Miles, he was a multilingual medical writer for Merck Sharp and Dohme International Division.

James F. Penrose of Upjohn International Operations, Inc., has been appointed assistant managing director of **The Upjohn Company (Australia) Pty. Ltd.** Mr. Penrose has been with Upjohn since 1950; he has served as sales supervisor and marketing coordinator for Upjohn International Operations in the Eastern Hemisphere. The Australian subsidiary has been operating since 1956, and last February completed a new plant and office building at Rydalmere, a suburb of Sydney.

Dr. Madelaine O. Maykut has joined the Research Center staff of **Pitman-Moore Company, Division of Allied Laboratories, Inc.,** as a senior pharmacologist in the pharmacology department. Dr. Maykut, a native of Canada, received her B.A., M.A. and Ph.D. degrees from the University of Toronto, and has, since then, served there and at Shouldice Surgery as pharmacologist.

Edwin J. Reidy has been appointed personnel manager of the **Armour Pharmaceutical Company.** He was formerly with the Crane Company in a similar position. In his new post, Mr. Reidy will be responsible for personnel and community relations, and his headquarters will be at the company plant at Kankakee, Illinois. Mr. Reidy received his education from St. Joseph College, Collegeville, Indiana, and Loyola University, Chicago, Illinois.



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Neomycin Sulfate Veterinary, Micromilled...from American Cyanamid. A neomycin grade of uniform excellence. Permits more effective antibiotic dosage levels in treatment of bovine mastitis, highly recommended for general veterinary use. Potency 450-550 mcg/mg, APHA color 200 maximum, pH 5.5 to 7. Tests show no udder irritation. Toxicity meets stringent FDA requirements. This is another example of how Cyanamid reduces your production costs by offering specific neomycin grades for specific applications.

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CYANAMID

AMERICAN CYANAMID COMPANY, FINE CHEMICALS DEPARTMENT,
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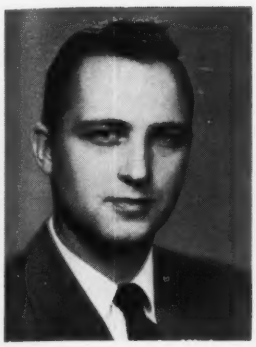
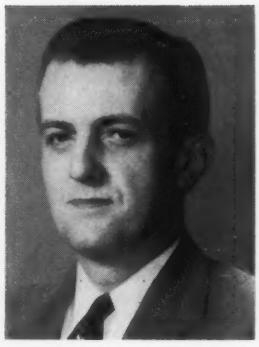


From left to right: Marvin E. Winquist, head of the new surfactants section, The Dow Chemical Company; Donald B. Black, assistant purchasing agent for raw materials, at Dow's Midland Division; Charles P. McClelland, associate director, Technical Service Laboratory, Union Carbide Chemicals Company; and Edward P. Shanahan, who has been appointed manager of dental products, E. R. Squibb & Sons.



Marvin E. Winquist has been named to head the new surfactants section keyed to the interest of the soap and detergents industry in the Technical Service and Development Department, **The Dow Chemical Company.** Mr. Winquist has been working with surfactants since joining Dow in 1955. In the **Midland Division,** Donald B. Black has been named assistant purchasing agent for raw material, succeeding E. C. Hawkins. Mr. Black has been with the firm since 1941. William H. Ragborg has been appointed to manage a new Dow Corning Corporation technical service and development laboratory to be built in Greensboro, N. C. It will be a part of the Product Engineering Department under the direction of T. A. Kauppi, in Midland. Mr. Ragborg has been assistant manager of the Fluids Section of the Product Engineering Laboratories.

The new associate director of the Technical Service Laboratory, **Union Carbide Chemical Company, Division of Union Carbide Corporation,** is Charles P. McClelland, who has been with the company since 1936, most recently as assistant manager of the Technical Service Department, in which position he will also continue.

E. R. Squibb & Sons has appointed Edward P. Shanahan manager of dental products. Mr. Shanahan has been with Squibb since 1954 as a professional service representative. The **Squibb Institute for Medical Research** has appointed Dr. Francis J. Sterbenz a research associate in chemotherapy, and Dr. Christina Vander Wende a research associate in pharmacology.

Dr. Jerome F. Sagin has been appointed manager of virus purification of the biological laboratories of **Merck Sharp & Dohme.** Dr. Sagin joined Merck in 1955 as research associate in bacteriology. Dr. Herman Goldner and Dr. Louis Potash have joined the staff of the Merck Sharp & Dohme Research Laboratories, in order to serve with the virus and tissue culture research group of the Merck Institute for Therapeutic Research, a part of the Research Laboratories. Dr. Goldner was formerly research immunologist with the Biochemical Research Foundation, and Dr. Potash has been, for the past five years, a member of the Division of Epidemiology, Department of Tropical Medicine and Public Health, of Tulane University.

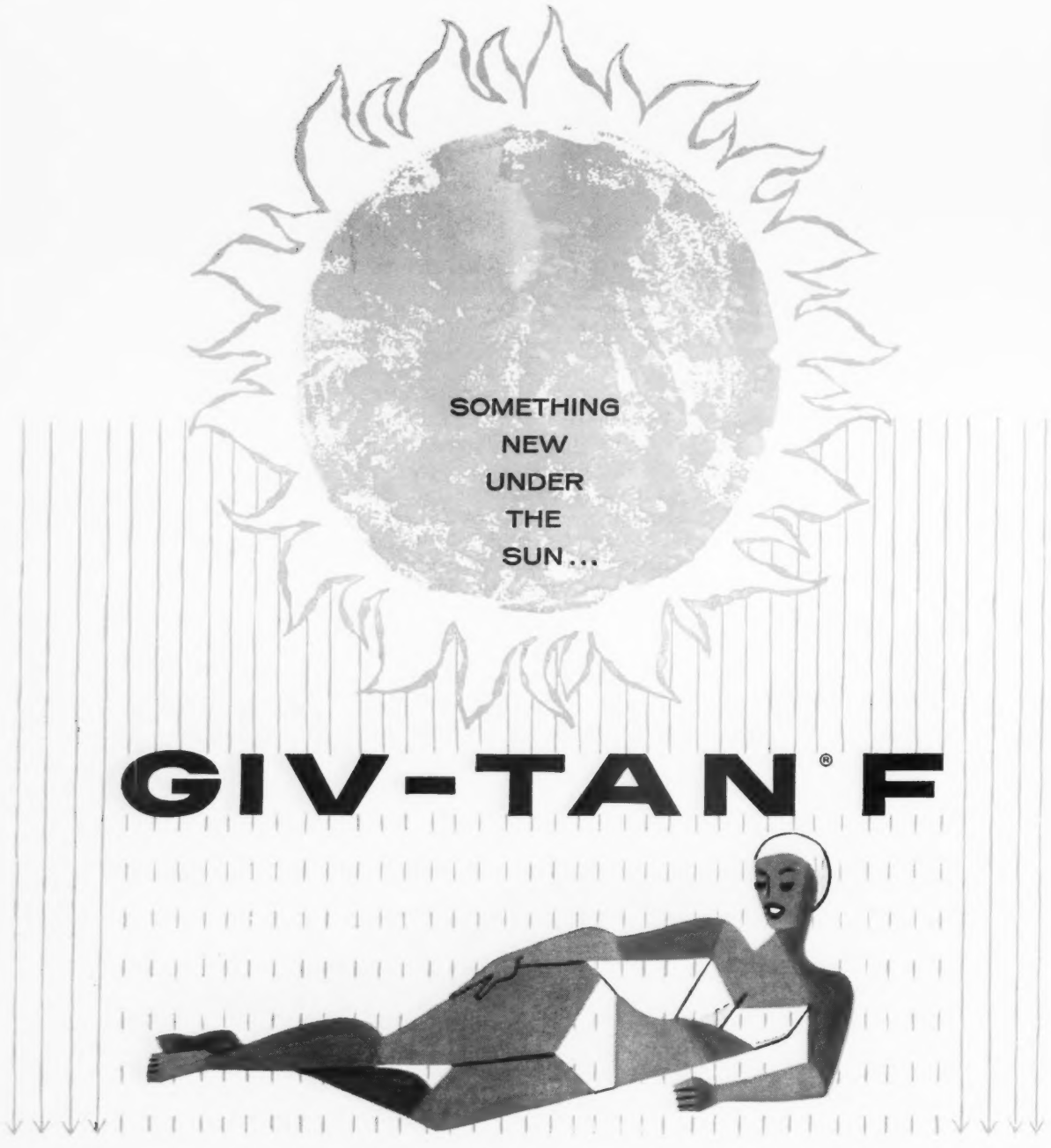
Baxter Laboratories, Inc., has named William T. Murphy assistant to the vice-president of marketing. Mr. Murphy was formerly in marketing management with Schieffelin & Company.

John H. Walker is president and Benjamin F. Kopp is vice-president of **Walker Chemicals, Inc.,** successors to the chemicals division of Gane & Ingram Inc.

Lanolin Plus has appointed the following executives: Charles Wade, formerly controller, Adams Carbide Corporation, as controller; Walter H. Page, previously an executive with Charles Antell Inc., and the Rexall Drug Company, as assistant vice-president in charge of sales, the Western Division; and Edward Denton, who had been eastern field sales manager of Pharma-Craft Company, as national field sales manager.

Eugene W. Wooten has been appointed to the newly created post of director of industrial relations for **Max Factor & Company.**

Left to right: Dr. Jerome Sagin, manager of virus purification, biological laboratories, Merck Sharp & Dohme, and Dr. Louis Potash and Dr. Herman Goldner, who have joined the staff of the Merck Research Laboratories, West Point, Pa., and William T. Murphy, who has been named assistant to the vice-president of marketing, R. D. Hetterick, at Baxter Laboratories, Incorporated. He was formerly with Schieffelin.



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GIV-TAN F is easy to use. Being a miscible oil, it dissolves and mixes readily in all media normally employed for sunscreen preparations. As an oil it offers special qualities that enhance the cosmetic elegance of your product.

GIV-TAN F is stable in solution and under exposure to sunlight...proved in field and laboratory tests...harmless to fabrics...non-irritating to the skin. It is extremely economical in any type of suntan preparation or sunburn preventive—in hydro-alcoholic solutions, oils, lotions, creams and other products.

We are ready to give you complete information on GIV-TAN F and full cooperation in using it to the best advantage in your preparations.

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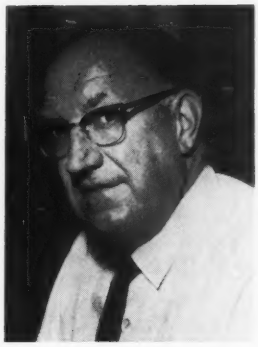


From left to right: William B. Dean, who has rejoined the Wyeth Laboratories executive staff as assistant to the sales manager, H. F. Aubuchon; Earle L. Taylor, promoted to the post of plant manager by Aerosol Techniques, Inc.; and two who have joined Pharmaceuticals, Incorporated, Fred Sands as director of marketing, and Grant Stinchfield as sales promotion manager for that firm and J. B. Williams.

Wyeth Laboratories has appointed William B. Dean as assistant to H. F. Aubuchon, sales manager. Mr. Dean joined Wyeth in 1937 as a sales representative. In 1955 he was named director of sales for Ives-Cameron, which is, along with Wyeth, a division of American Home Products Corporation. When Ives-Cameron moved its offices to New York City, Mr. Dean rejoined Wyeth.

Earle L. Taylor, who has been assistant plant manager for **Aerosol Techniques, Inc.,** has become plant manager. Mr. Taylor has been with the company since its founding.

Fred Sands has been appointed director of marketing for **Pharmaceuticals, Incorporated.** He had been associated with Whitehall Laboratories, Schering Corporation and Chas. Pfizer & Co., Inc. Grant Stinchfield has joined Pharmaceuticals, Incorporated and **The J. B. Williams Company** as sales promotion manager of both firms. He was formerly associated with Warner-Lambert.

Dr. Charles S. Delahunt has been appointed manager of toxicology and animal health and supply, and Dr. Robert Stebbins as manager of pathology, both in the Macrobiology Department of **Chas. Pfizer & Company, Inc.** The two scientists recently moved from the Maywood, N. J., research laboratories to the firm's new facilities in Groton, Conn. Dr. Delahunt and Dr. Stebbins both joined the company in 1958. Walter A. Bastedo has become director of marketing, succeeding Dr. Charles M. Mottley, who is returning to the Stanford Research Institute. Mr. Bastedo has been with the firm since 1954, most recently as head of the chemical section of the Department of Marketing Research.

Donald H. Brewer, formerly senior vice-president of Container Corporation of America, has been elected vice-president of **Rexall Drug & Chemical Company,** to serve as the firm's corporate officer in charge of all plastics processing operations. His office will be at Rexall's world headquarters in Los Angeles. Divisions and subsidiaries reporting to Mr. Brewer include: Injection Molding Company; Chippewa Plastics, Inc.; Kraloy Plastic Pipe Company, Inc.; Chemtrol; and E & A Sales.

Dr. Harvey L. Daiell has been appointed senior vice-president and a member of the board of directors of **Lakeside Laboratories, Inc.** Associated with Lakeside since 1947, Dr. Daiell's first major responsibility was initiating an intensive research and development program. Dr. Harris L. Friedman has been named vice-president for research, succeeding Dr. Daiell, and Dr. Harry M. Leyland, formerly director of clinical investigation, has been promoted to associate director of research.

Sol D. Frolich, formerly a regional sales manager for Revlon, Inc., has been elected vice-president of the **Nylonet Corporation** of Miami, Florida. He will be in charge of the firm's beauty division. Also appointed were Eileen Wiley as secretary, and Robert Lynn as vice-president in charge of the franchised distributor division.

Lawrence W. Gibbes, who has been a member of **Eli Lilly and Company**'s domestic sales organization since 1946, has been promoted to the position of sales director of the Africa and Middle East districts for the firm's export affiliate. Sales districts under his supervision cover 40 countries ranging from Algeria on the west to West Pakistan on the east, and from Turkey on the north to the Union of South Africa. His headquarters are in Geneva, Switzerland. Mr. Gibbes' most recent position with Lilly was that of manager of the Jacksonville district.

The **Warner-Lambert Products Division of Warner-Lambert Pharmaceutical Company** has appointed the following: Irvin W. Hoff, vice-president, has also assumed the position of general products director, coordinating the advertising and marketing activities of all lines; John J. McClellan, a vice-president of the Division, is now product director for Listerine antiseptic and tooth paste; Paul Elliott-Smith, formerly advertising manager for proprietary medicines, is now product director for Bromo-Seltzer; J. E. Murray, who had been controller for consumer product divisions, is now product director for the Anahist line; and John Anderson, previously general sales manager for Fizzies, is now product director for foods. In the **Hudnut-DuBarry Division,** Thomas J. McEwan has been promoted from merchandising director for proprietary medicines, cosmetics, and toiletries, to the new position of marketing director of new products. Mr. McEwen joined Warner-Lambert in 1946. Bruce Ross, who had been vice-president of the J-E Plastics Manufacturing Corporation, succeeds Mr. McEwan as merchandising manager for the Hudnut-DuBarry Division.

From left to right: Dr. L. Eugene Daily, who has been promoted to administrative vice-president of the Norwich Pharmacal Company, a newly created position; Charles H. Kohlinger, who has joined Shulton, Inc., as manager-European administration; Gilbert J. Supple, advertising director of Shulton, Inc.; and Charles R. Adams, newly appointed sales manager, Riker Laboratories, Inc. with offices in Los Angeles.

The **Norwich Pharmacal Company** has promoted Dr. L. Eugene Daily from the position of vice-president in charge of the Eaton Division to that of administrative vice-president, with over-all responsibility for all four sales divisions: Eaton Laboratories, Norwich, Export, and Canadian. Dr. Daily joined Norwich in 1946 as medical director and a member of the board of directors of Eaton Laboratories. In 1953, he became executive vice-president of Eaton, and in 1955 was elected a vice-president of Norwich and to the board of directors of the parent company. He was recently appointed to the Department of Defense Advisory Panel on Medical Sciences.

Charles H. Kohlinger has joined **Shulton, Inc.,** as manager-European administration, with headquarters in New York City. Prior to his new position, Mr. Kohlinger had spent more than ten years with the International Division of Vick Chemical Company, most recently as vice-president and general manager of Vick International, N. V., the firm's Benelux subsidiary. Gilbert J. Supple has been appointed advertising director for Shulton, succeeding Walter P. Lantz, who has become director of market research. Mr. Supple had been creative and television director at R. K. Manoff, Inc. In his new position Mr. Supple will be responsible for Shulton's over-all advertising program.

Riker Laboratories, Inc. has appointed Charles R. Adams as sales manager, with headquarters in Los Angeles, and Robert Service, formerly a division sales manager, to the newly created position of advertising manager. He will also be located in Los Angeles.

Winthrop President Named To Rockefeller's Council

Nelson A. Rockefeller, Governor of New York State, has appointed Dr. Theodore G. Klumpp to the newly created Governor's Council on Rehabilitation. Dr. Klumpp is president of Winthrop Laboratories, and resides on Long Island.

The Council, which is headed by Leonard W. Mayo, executive director of the Association for the Aid of Crippled Children, was established for aiding the rehabilitation of handicapped persons in New York State. It will advise the Governor and the Interdepartmental Health Resources Board on the State's rehabilitation program.

Dr. Klumpp served as chairman of the Hoover Commission Medical Services Task Force on Organization of the Executive Branch of the Government, from 1953 through 1955, and has served in many other public capacities. He is a former president of the American Pharmaceutical Manufacturers' Association and of the National Pharmaceutical Council.

Donald Breyer Leaves de Markoff Corporation

Donald A. Breyer has announced his withdrawal from the Alexandra de Markoff Sales Corporation, a wholly owned subsidiary of Charles of the Ritz. Mr. Breyer, who had been in charge of de Markoff sales, the western division, since early this year, was formerly president and principal stockholder of Anatole Robbins, Inc., which was acquired by Alexandra de Markoff earlier this year.

Mr. Breyer can be reached at 169 Arlington Drive, Pasadena, California.

Dr. Gump Honored by Cosmetic Chemists

Dr. William S. Gump, research associate of The Givaudan Corporation and its subsidiary Sindar Corporation, has been selected to receive the 1959 Medal Award of the Society of Cosmetic Chemists for his

DR. WILLIAM S. GUMP

contributions to the "art and science of cosmetics."

The award is to be presented to Dr. Gump by S. F. Coneybear, Society president, at the Society's annual meeting and medal award dinner on Wednesday, December 2, at the Hotel Commodore in New York.

R. Kramer In the Far East

Robert A. Kramer, vice-president in charge of sales, Evans Chemetics, Inc., and secretary of the Society of Cosmetic Chemists, is on a business trip, visiting scientific laboratories, chemical plants, and governmental agencies of some of the more important countries in the Far East, until early November.

Mr. Kramer is also speaking to groups in various countries concerning the newly formed International Federation of Societies of Cosmetic Chemists.

Package Designers Hold Seventh Annual Meeting

The Package Designers Council during its recent seventh annual meeting at the Hotel Gotham, New York City, re-elected Karl Fink, head of Karl Fink Associates, industrial engineers, as president.

KARL FINK

Other officers elected are May Bender, secretary, and Ernst Ehrman, treasurer. Harry Lapow, Robert Neubauer, and Robert Zeidman were elected to three-year terms on the board of directors.

The evening's program included a discussion of the Museum of Modern Art's show, The Package, which has created considerable interest in the field of package design. (See "Packaging: An Applied Art," in our October issue, page 477.)

The board of directors granted a charter for the formation of a midwest Chapter of the Council, the first to be formed within the organization. Its headquarters are in Chicago, and its officers are: chairman, Morton Goldsholl, head of Morton Goldsholl Design Associates; vice-chairman, Rene Burvant of Reinecke and Associates; and secretary-treasurer, Robert Sidney Dickens, Robert Sidney Dickens, Inc.—elected a member of the Package Designers Council board of directors in 1957.

Brockway Announces New Plant

The Brockway Glass Company of Brockway, Penna., has announced plans for a multi-million-dollar, glass-container manufacturing plant to be erected in Dakota County about seven miles south of Minneapolis and St. Paul. Completion is expected in the Fall of 1960.

The plant will produce both flint and amber glass containers.

D&C Orange Nos. 3 and 4

The *Register* for October 21 contains a notice to the effect that "the Commissioner of Food and Drugs, on his own initiative . . . proposes to amend the color-certification regulations by removing D&C Orange No. 3 and D&C Orange No. 4 from the list of colors certifiable for use in drugs and cosmetics." Views and comments should be submitted (five copies) to the Hearing Clerk, Department of Health, Education, and Welfare, Room 5440, 330 Independence Avenue, S.W., Washington 25, D.C., before November 20.

Walker Chemicals Moves

Walker Chemicals, Inc., successors to the chemicals division of Gane & Ingram, Inc., has moved its sales and executive offices to 22 West First Street, Mount Vernon, New York. The company continues to offer the same line of fine chemicals as did its predecessor, under company president John H. Walker, and vice-president Benjamin F. Knopp.

Meer Occupies Expanded Plant Facilities

The Meer Corporation has recently moved into a new 320,000-cubic-foot addition to its plant in North Bergen, N. J., which is expected to increase Meer's manufacturing space by 60 per cent. Footings have already been poured for still another new building, to take care of the firm's expanding production of botanicals.

PMMI Elects Officers

At the annual meeting of the Packaging Machinery Manufacturers Institute, Inc., new officers were elected, their terms to begin on January 1, 1960.

Those elected for two-year terms are: president, Kenneth B. Hollidge,

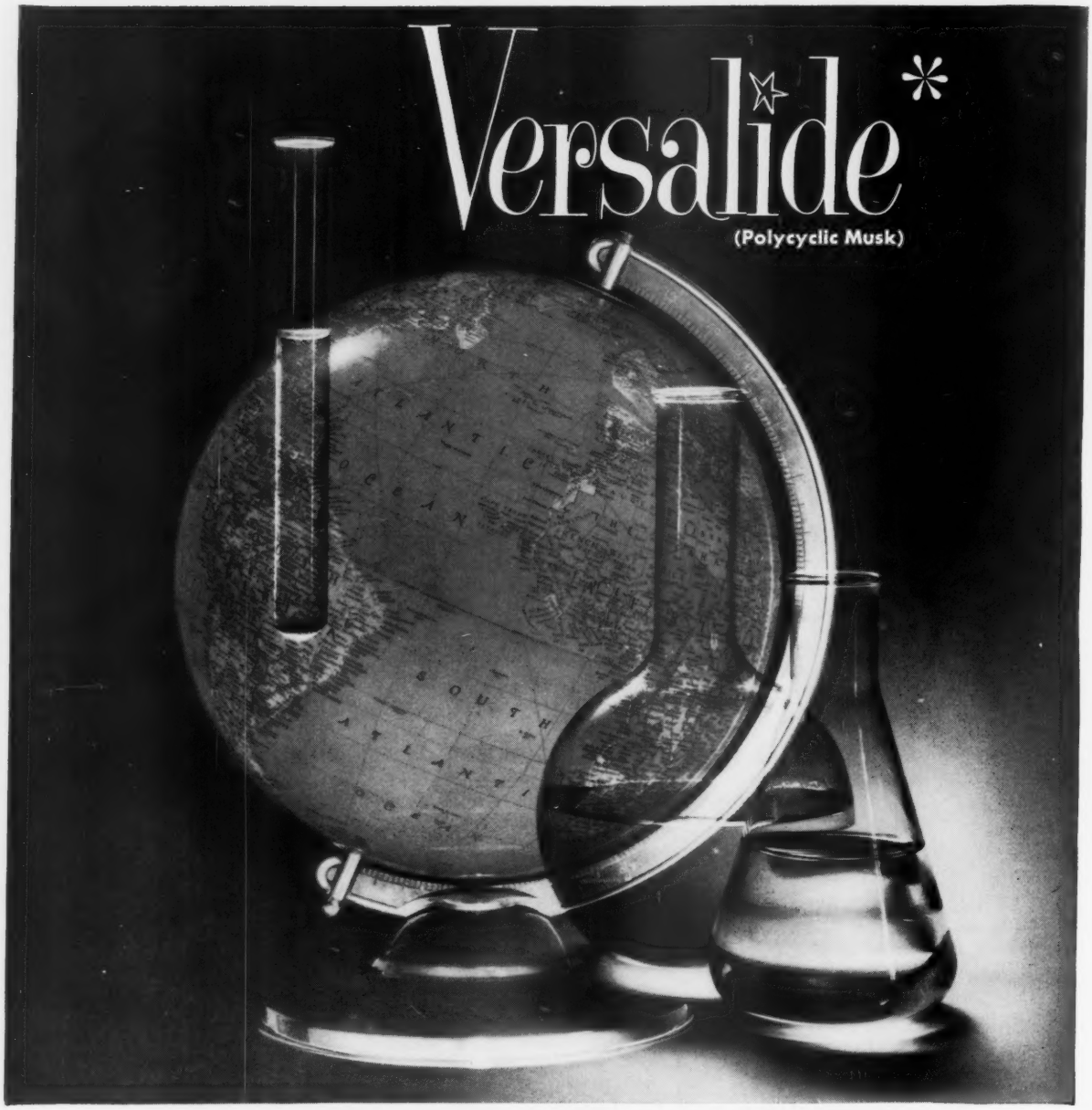
KENNETH B. HOLLIDGE

Arthur Colton Company; first vice-president, W. R. Hugenin, Food Machinery Manufacturing Company; second vice-president, Harold Mosedale, Jr., Package Machinery Company; third vice-president, William W. Anthony, Jr., Crompton and Knowles Packaging Corporation.

New three-year term directors are Arthur E. Motch, R. A. Jones Company, Inc.; J. H. Brezinski, Roto Bag Machinery Corporation; and Gene Lakso, Lasko Company.

As third vice-president, Mr. Anthony will serve as chairman of the 1961 PMMI Show, which will be held in Detroit, Michigan.

Dr. Ernest Guenther, vice-president and technical director of Fritzsche Brothers, Inc., who spoke on Production of Essential Oils Around the World to the Cosmetic Career Women at their recent luncheon at New York City's Waldorf-Astoria Hotel. Surrounding him, from left to right: Josephine Catapano, van Ameringen-Haebler; Agnes Korte, Givaudan-Delawanna, Inc.; Frances Kistler, Colgate-Palmolive Company; Grace A. Hufner, beauty editor, Fawcett Women's Group, and chairman of the luncheon; Mysie Emmet, Albert Verley Company; and Gertrude Freeze, Dodge & Olcott, Inc. All dais guests are members of the Cosmetic Career Women.



an international success!

Within a year of its introduction, *Versalide*, Givaudan's outstanding new polycyclic musk, has met with international acceptance! Perfumers throughout the world of fragrance have recognized in its versatility and unique combination of advantages a whole new field of opportunity for creative perfumery.

Versalide lends to a perfume all the enhancement, sweetness, strength, fixation and blending properties expected only from the macrocyclic musks, and yet at a fraction of their cost.

A pure chemical body, not a mixture, *Versalide* is economical—stable to light, heat, air, alkali; and does not discolor soap. And its versatility is practically unlimited!

We will gladly send you a sample and more detailed information.

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Mrs. Samuel Isermann, president of Van Dyk & Company, sending an Aloha to her friends from Hawaii, where she has been visiting recently. "Centa" writes that she is enjoying the beauty and wonders of our fiftieth state.

Borough President, John Cashmore (l.); George S. Squibb, a great-grandson of Dr. E. E. Squibb; and a granddaughter, Miss Margaret Squibb, dedicating Squibb Park, at the foot of the Brooklyn Bridge near 1858 plant site.

Walter R. Beardsley (right), president, Miles Laboratories, shakes hands with Irving Wershaw, president, Dome Chemicals, after Miles acquired Dome for $7.5 million. Mrs. Wershaw, co-founder of Dome, looks on.

Dragoco Buys Schimmel

Dragoco, Inc., has completed arrangements for the purchase of Schimmel, the well-known essential oil company of Austria.

According to Dr. Gribou, vice-president of Dragoco, the resulting expansion of the firm's manufacturing facilities will facilitate its worldwide service.

Lehn & Fink Division Moves to Toledo

The Professional Division of Lehn & Fink Products Corporation has moved its management and administrative staff from New York City to 4934 Lewis Ave., Toledo, Ohio.

Manufacturing, research and technical research facilities will continue in Bloomfield, N. J., and Lincoln, Ill. The move will make possible closer coordination of the Professional Division with National Laboratories, a subsidiary in Toledo, which specializes in bulk sale products.

New Drug Offices Moved to Getty Building

New Drug Institute, Inc., an organization for research and development of drugs, cosmetics, and allied chemicals for industry, has moved its executive offices to larger quarters in the new Getty Building at 666 Madison Avenue, New York City. The Institute will maintain its research and pharmacology laboratories in the Bronx.

The move was necessary because the Institute has expanded its editorial and literature research service, and will produce *The Journal of New Drugs*, its own publication, early in 1960.

Squibb Park Dedicated In Brooklyn, N. Y.

A park adjacent to the Brookyln, N. Y., manufacturing facilities of E. R. Squibb & Sons was recently dedicated. Named after the founder, Dr. Edward Robinson Squibb, the park is at the foot of the Brooklyn Bridge, only a short distance from the site of the first Squibb laboratory founded by Dr. Squibb in 1858 for the production of medicinals for the military forces.

A grandaughter of Dr. Squibb, Miss Margaret Squibb, a great-grandson, George S. Squibb, an executive of the firm, and Borough President John Cashmore unveiled the plaque commemorating the event in ceremonies attended by municipal officials and company executives.

The naming of the park was approved by the New York City Council in a local law passed last March.

Irene Strieby Retires From Lilly Library

Irene M. Strieby, who has served as chief librarian at Eli Lilly and Company for 22 years, retired at the end of September.

In 1956, Mrs. Strieby was named library consultant and, two years later, she became the company's archivist. Under her leadership since 1934, the collection has grown to 30,000 volumes and the staff of librarians has increased to 18.

Mrs. Strieby is a member of several librarian and archivist associations, and an associate member of the American Chemical Society's Chemical Literature Division. In 1956 she received the Professional Award of the Special Libraries Association, for which she has served as president of both the Indiana chapter and the national organization.

H. Boris Burns (center), a founder and now president and board chairman of the U. S. Vitamin and Pharmaceutical Corporation, during dinner in his honor given him by friends and industry executives marking the firm's 25th year. Left to right: L. D. Barney, president, Hoffmann-La Roche, Inc.; Mason Gaston, Merck & Company, Inc.; Mr. Burns; U. S. Senator Jacob K. Javits (R., N. Y.) and Jacob Burns, a director of U. S. Vitamin & Pharmaceutical Corporation.

BAD MEDICINE IS NO LONGER A VIRTUE!

"Puritans were opposed to bear-baiting, not because it gave pain to the bear but because it gave pleasure to the spectators."

But today pleasure is no longer a vice—nor foul tasting medicinals a virtue, as once they were thought. Not that we suggest a return to bear-baiting as a sport . . . But neither is it profitable to be Puritanical about adding taste-appeal to your oral product. It PAYS to be good to your customer by giving that pharmaceutical a flavor which makes even medicine taking a bit of fun. And to achieve just that right flavor in an often complicated and highly precise formulation, individual development in the D&O Flavor Laboratories is the answer. Here skilled flavor chemists *and* experienced pharmacists work together to the end that your customer will take his medicine as a pleasure . . . not a punishment. Consult D&O.

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OUR 161st YEAR OF SERVICE

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ESSENTIAL OILS • AROMATIC CHEMICALS • PERFUME BASES • FLAVOR BASES • DRY SOLUBLE SEASONINGS

Lakeside Forms Marketing Division

A new marketing division has been formed by Lakeside Laboratories, Inc., to coordinate all marketing for the company, including advertising, sales, and merchandising and promotion. It is headed by Wyman Guin, formerly vice-president in charge of advertising, who is now vice-president for marketing.

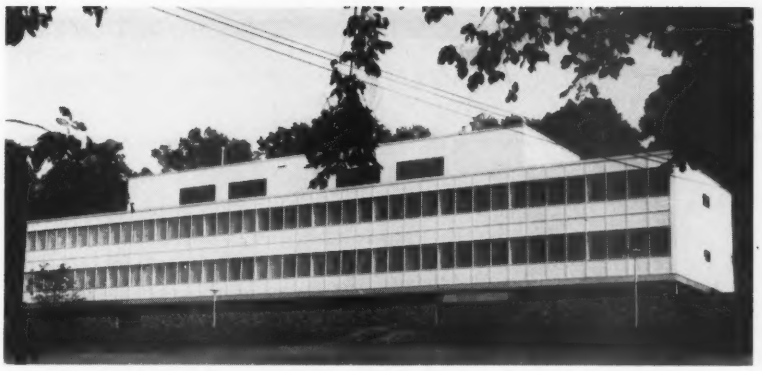
In the reorganization of the sales and advertising departments of the new division, several promotions have been made: in sales, William A. Hartstone, from domestic sales manager to vice-president and director of trade relations; John Sladek, from a district sales manager to domestic sales manager; and Robert Furr, from manager of sales education to field sales manager; in advertising, Howard D. Evans, formerly in charge of advertising for the parenteral division of Mead Johnson & Company, now director of advertising and promotion; Mrs. Helen Martin, from assistant advertising manager to advertising manager; and Wendell Perry, from new product development to manager of promotion research.

Union Carbide's New Texas Plant Readied for 1961

Construction for conversion of the recently purchased facilities at Brownsville, Texas, for use as a chemical plant will begin next April, according to Morse G. Dial, chairman of the board and chief executive officer of Union Carbide Corporation. When the plant is put into operation in March, 1961, it will employ about 200 people, and will produce a wide variety of chemical solvents and intermediates for industrial customers. Operations there will be carried on by Union Carbide Chemicals Company and Union Carbide Olefins Company, both divisions of Union Carbide Corporation.

A. H. Robins Builds New Warehouse

The A. H. Robins Company, Inc., has begun construction of a new warehouse which will add more than 50,000 square feet to the Richmond, Virginia, pharmaceutical plant. The warehouse will match the plant, built in 1953 and since then twice enlarged, and is expected to be ready for use in four months.



Geigy Chemical Corporation's multi-million dollar building in Ardsley, Westchester County, N. Y., dedicated on October 16 as the first U. S. pharmaceutical research center for the 200-year-old Swiss organization, to search for chemical answers to problems including cardiovascular, arthritic, metabolic, and mental illness. Completely air-conditioned, the building has laboratories for work in organic and inorganic chemistry, biochemistry, and pharmacology.

Frederick F. Rauch

Frederick F. Rauch, who retired in 1957 after 23 years with S. B. Penick & Company, died at his home in Rockville Center, N. Y., on October 23. He was 77 years old.

Following a requiem mass at St. Agnes Cathedral, Rockville Center, Mr. Rauch was interred at the Cemetery of the Holy Rood, Westbury, N. Y.

Mr. Rauch is survived by his sisters, Mrs. Lena Boes of Essen, Germany, and Miss Mary Rauch of Karisruhe, Germany.

Charles Wesley Dunn

Charles Wesley Dunn, counsel for the American Pharmaceutical Manufacturers Association almost from its inception, until its recent merger into the Pharmaceutical Manufacturers Association, died at his home in South Norwalk, Conn., on November 2, at the age of 74.

Mr. Dunn served as counsel for the Grocery Manufacturers of America for more than 40 years, and also as counsel for the Premium Advertising Association of America. He was president of the Food Law Institute, professor of law at New York University in charge of instruction in food and drug law, chairman of the Division on Food, Drug, and Cosmetic Law in the Section of Corporation, Banking, and Business law of the American Bar Association, chairman of the Section on Food, Drug, and Cosmetic law and chairman of the Section on Antitrust Law in the New York State Bar Association, and, among many other activities, chairman of the Editorial Advisory Board of the Food Drug Cosmetic Law Journal.

Frederick J. Austen

Frederick J. Austen, who retired in 1946 from his position as head of control for Warner-Hudnut, Inc., died in Brooklyn, N. Y. on October 4, after a short illness.

Prior to his association with Warner-Hudnut, Dr. Austen had been with E. R. Squibb & Sons as chief of the control laboratory, and had at one time conducted his own consulting business, at which time he completed several outstanding research projects.

Dr. Austen was one of the first members of a committee formed to improve the scientific standing of the cosmetic industry, and did considerable work on the standards, many of which were issued while he was still active in business. The committee, which later became the Scientific Section of the Toilet Goods Association, recognized his work by electing him honorary chairman.

Dr. Austen is survived by his wife, Lois Smith Austen.

Jean Fabre

Jean Fabre, chairman of the board of Roure-Bertrand Fils et Justin Dupont, died recently at his summer home near Grasse, France.

An expert in law and finance, Mr. Fabre was largely instrumental in the merger of two companies into the Societe Anonyme des Etablissements Roure-Bertrand Fils et Justin Dupont. In 1947 when his uncle, Louis Roure, died, Mr. Fabre became president of the company.

From 1949 to 1952 he served as president of the Syndicat National des Fabricants et Importateurs d'Huiles Essentielles et Produits Aromatiques Naturels.

DOW | **CHEMICAL NEWS . . .** *Chemical smorgasbord for processors*

One of the big extras a chemical producer can offer a chemical processor is variety. A wide variety of chemicals gives the processor an opportunity to combine his raw-material needs in one order. And a wide variety of molecular weights, viscosities, and physical forms within each product line can have an important effect on the processor's ease of handling, storage, processing methods—even the quality of his finished product. News of chemicals for the drug and cosmetic industry—each in the Dow tradition of complete coverage within each product family—are described on these pages.

You may wish to check certain items in this advertisement and forward to those concerned in your company.

Route to:

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POLYETHYLENE GLYCOLS— "SILENT PARTNERS" FOR BEAUTY AND HEALTH

Some chemicals completely dominate a formulation—even in minute quantities. Others merely give a subtle hint of their identity. And some are "silent partners"—their contribution to a formulation is important, but their presence is not apparent. Such chemical ingredients are the polyethylene glycols. Available in twelve different molecular weights—the broadest range commercially available—Dow's P.E.G.'s are unsung heroes of the drug and cosmetic industry.

Wide-awake drug and cosmetic producers would be wise to take an appraising look at the advantages of Dow's polyethylene glycol family. Blandness, water solubility, compatibility, low toxicity are their qualifications as carriers or bases in drug and cosmetic products.

In the drug industry, polyethylene glycols have challenged the traditional grease-type anhydrous ointment bases; the bases for lotions and suppositories; the ingredients for tablet coating . . . and they are taking an increasingly broad share of the market for water-soluble ointment bases which might serve as carriers for antiseptics, penicillin, sulfa drugs, peroxides, and other medicaments.

Until the advantages of P.E.G.'s were popularized, grease-type bases were the only vehicles for substances which deteriorate in the presence of moisture. But the newcomers not only preserve the activity of medicaments, which deteriorate in the presence of moisture, they also release the medicament more quickly and efficiently.

In lotions, the polyethylene glycols replace glycerine where a milder humectant action is desired. Suppositories, too, benefit from P.E.G.'s wide range of melting points and water solubility. The high-molecular-weight polyethylene glycols give suppositories greater shelf stability under high-temperature storage conditions.

As a tablet coating, polyglycols require a much shorter coating time than sugar. And they have a better appearance, a more durable surface, and are easier to emboss than other coatings.

Cosmetic manufacturers, too, are jumping aboard the polyethylene glycol bandwagon. In their neutral, odorless, non-irritating, water-soluble way, the polyglycols make ideal silent partners as bases for glamor creams, jellies, and lotions. The polyethylene glycols offer a wide range of compatibilities and moderate hygroscopicity.

What's more, they do not decompose, and seldom react with other ingredients in the cosmetic. The preparations made with polyethylene glycols show excellent softening, conditioning, and skin-smoothing characteristics, and are free of undesirable moisture or a tacky feeling on the skin.

All the latest news and information on polyethylene glycols is contained in a new brochure offered by Dow. Write for your copy. And it almost goes without saying, that Dow invites any inquiries you may have concerning the right polyglycol for your product.

METHOCEL:

Right on the push-button

Made-to-order for smoother, creamier aerosol packaging, Methocel® synthetic gums—another group of Dow products with a big family tree—act as superior emulsion stabilizers and thickening agents, with many unique advantages over other gums: uniformity of properties, closer control of purity, unlimited availability in a wide range of viscosities, with built-in properties tailored to suit the requirements of the cosmetic and pharmaceutical industries.

Cosmetic manufacturers find Methocel, in the HG-type viscosities, ideal for use as binding, thickening, dispersing, and emulsion-stabilizing agents, and for their water-retention properties. In the Methocel family, pharmaceutical manufacturers have found a release from dependence on the natural gums and gelatin. Methocel is always uniform and its wide range of viscosities simplify development and control work.

And now, several viscosities of Methocel are being produced in granular form. Methocel granules dissolve slower, permitting a smoother dispersion directly into cold water without first preparing a slurry.

For smoother sailing in the drug and cosmetic races, send for the Methocel handbook, or report your problem to Dow Technical Service.

AROMATICS:

Wood notes in fragrance

Dow's variety of raw-material combinations available to the cosmetic perfumer are boundless. Take C•64®, for example. A synthetic aromatic chemical, it has a powerful aroma, spicy and earthy in character, and is compatible and soluble with all aromatics and solvents normally encountered in the cosmetic field.

C•64 is well-suited to any aroma where wood notes and woody effects are desired. It will accent the character of certain spice notes such as clove bud, cinnamon, nutmeg. It adds a spicy effect to the "cool" florals such as hydroxycitronellal, cyclamen aldehyde, and Lavamenthe®. It modifies the lavender-Fougere types as well as the "continental" cologne varieties. And C•64 can give long-lasting and intense effects to an oriental aroma. C•64 is only one of many aromatics which Dow has available to solve your odor problems.

★ ★ ★ ★

For further information on these products and other Dow chemicals, write THE DOW CHEMICAL COMPANY, Midland, Michigan, Chemicals Merchandising Department 921AW11.

4 more — CHEMICAL FAMILY MEMBERS

CHLOROTHENE®

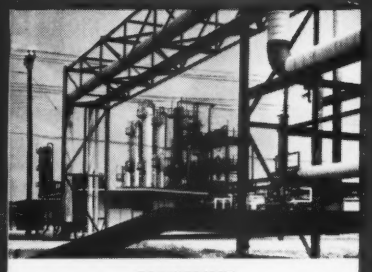
High quality payoff for vapor pressure depressants. Chlorothene is going great with aerosol packagers, doing the job for less money, providing higher solvency for active ingredients.

DOWANOL® DPM

Keep cosmetic and drug products clear and bright in spite of all temperature changes. Serves as a perfume fixative, lotion coupling agent, solvent in nail polish lacquers.

MIXED I.P.A.

Cosmetic emulsifier. Dow's mixed isopropanolamine offers protection against irritation; good color stability; even texture and consistency for creams; withstands temperature changes.



GLYCERINE

Old standby, Dow's synthetic glycerine has higher glycerol content, plus greater purity and clarity. What's more, it's at your fingertips—in abundant quantities throughout the country.

DOW CHEMICALS BASIC TO THE DRUG AND COSMETIC INDUSTRY

Aromatics • Emulsifiers • Alkalies
Thickeners • Stabilizers • Glycerine
Solvents • Humectants • Glycol Ethers
Polyols • Preservatives
Ion Exchange Resins
Chelating Agents • Methylcellulose
Amino Acids • Fine Chemicals
Pharmaceutical and Medicinal Intermediates

THE DOW CHEMICAL COMPANY

Midland, Michigan

DOW

Stokes Model 551—high speed tabletting machine produces over 3000 Maalox tablets per minute.

at William H. Rorer Inc. . . .

1½ million ½" tablets per day ...with one Stokes 551

Immediate and widespread success of Maalox—an ethical antacid product for ulcer control—presented the William H. Rorer Co. with a production problem: how to keep pace with demand. Rorer solved the problem quickly by adding an eighth Stokes tabletting machine. This one: Model 551, a high speed rotary tabletting press developed by Stokes expressly for high volume production.

Over 3000 tablets per minute are produced by the 551 . . . an amount that previously required as many as three machines. And this high production rate is achieved while using an unusually large punch and die—½" in diameter—and without the added expense of forced-feeding! At present, Rorer is using the 551 on an 8-hour daily schedule. Plans include the installation of another machine as demands on production capacity increase.

The Model 551 is one more example of the way Stokes equipment matches the unique requirements of the pharmaceutical industry. Why not find out how Stokes can help meet your own production demands. Stokes Advisory Service will help you plan production, select equipment and train personnel. There's a Stokes representative as near as your phone.

SEE IT in operation at the Chemical Show—Booths 37 and 68

Pharmaceutical Equipment Division
F. J. STOKES CORPORATION
5500 Tabor Road, Philadelphia 20, Pa.

STOKES

Management Forum

BY FRANCIS CHILSON
INDUSTRIAL CONSULTANT

One-Man Organizations

The term "one-man organization" is often misunderstood. Many people think it refers only to small organizations. In fact, many large organizations are one-man organizations. It isn't that such organizations lack organization charts, or properly titled executives in the right places; but, rather, that responsibility has been divided without concomitant authority.

I had a client several years ago who prided himself on his organization. He had an organization chart—a big one. He also had divisional organization charts. And these, in turn, were supported by organization manuals defining the authority and responsibility of every man-jack in the place. But all this stuff didn't mean a damn thing. Nobody in the outfit had authority to do anything without Mr. Big's prior knowlege and approval. And, of course, everybody knew it. When confronted with a proposal Mr. Big invariably would say, "This is your responsibility. But don't take any final action on it without seeing me again." Nobody took any action on anything because they knew they would lose their heads. Organization charts are helpful to some people. Some of the most effective organizations I have been associated with never had any organization charts at all.

Control Procedures

The pharmaceutical industry has gone overboard with respect to control procedures. Much of this super-caution derives from the Massengill and Salk vaccine scares. Far be it from me to minimize the necessity of both exacting and thorough control procedures on finished products. I gripe only about repititious control procedures used in checking incoming raw materials, and particularly the time-consuming in-process checks that are made.

For years I have advocated the establishment of a certification laboratory for trade raw materials, especially those of chemical origin. The suppliers go through exacting control procedures to make sure their products conform to specifications. The purchasers eventually repeat the whole damn performance. Some materials of fish, animal or botanical origin vary widely on assays, and there is no agreement as to which one is right. During processing, assays are repeated again, and production is held up. But the important assay is, of course, the final one. No product should be shipped until final assays have been made and the product released by the control labs. But I have observed hundreds of cases where production was delayed by several days because of delays on in-process controls. This is for the birds. When products are standard line items they should be allowed to go through the plant as fast as may be. True, once in a while a batch that has been made and packaged may be rejected, and in such cases the plant loses production time and packaging materials. But in standardized operations such rejections are so few, relatively, that it is economical to take a chance, especially when the lot cannot leave the quarantine area in the finished stock room until finally released by the control department. But you cannot convince the dedicated control man that his job is to help rather than hinder production. Most control men don't give a damn about production. They go strictly by the book. Another thing: many control men are really not well trained chemists and consequently don't know all the short cuts by which they could speed up their work. Let's provide every possible protection for the consumer, but let's also keep the sand out of the bearings of the plant.

In the past, I have advocated a certification system for raw materials. It has been done for colors. Why shouldn't it also be done for standard materials? On incoming materials, identity checks should be enough, assuming of course that the materials have been bought from reputable suppliers. But I'm spitting against the wind again, because no control man would be content with taking any but the long road home.

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Chicago 7, Illinois

PRESENTS

A completely new continuous method for the compression of dry powders for the production of tablet granulations.

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OFFERS

Dry compression coating of core tablets either single or double coat at rates up to 900 finished tablets per minute. Also two or three layer tablets on same machine.

SEE OUR EXHIBIT

BOOTH 64 — FIRST FLOOR

27th EXPOSITION OF CHEMICAL INDUSTRIES

COLISEUM, NEW YORK

NOVEMBER 30 TO DECEMBER 4, 1959

Proliferating Humans

The accelerating population of the U.S. and the world is regarded in many quarters as justification for a wildly optimistic view of the future for the drug and cosmetic industries. In many quarters it is anticipated that by 1975 the ethical drug business will amount of five billion dollars. I heard one estimate that by the year 2,000 the ethical business will reach a totel of twenty billion dollars. All these estimates wild or otherwise are based upon population growth per se. It is true that a person cannot come into the world without drugs of some sort being used upon him; he cannot live or cannot leave without benefit (or otherwise) of drugs. But the prognosticators overlook one important fact: it is not possible to buy drugs in hospital or out without money and money comes from jobs. Somebody has to pay the shot. In the past few years automation has begun to monopolize the jobs formerly done by unskilled workers. There has been a glut of high school and college age boys looking for summer jobs. Time was when they could get jobs digging ditches or as farm laborers. But machines have replaced the ditch diggers and farms are becoming so mechanized that only skilled persons can operate the equipment. In addition the school age laws make it impossible for boys between fourteen and sixteen to get work even when it is available. Hence an increase in juvenile delinquency. All these problems will of course be worked out unless we allow ourselves in the meantime to become burried in babies.

Far be it from me to interfere with the pleasures of the marital couch but I would like to point out that pleasures can result in serious hazards. Unrestricted and too rapid population growth in point of time can stifle us. Right now the population we have has caused serious problems. Our potable water supplies are dwindling and the cost of providing adequate water supplies is imposing a terrific burden on municipalities. The costs thereof must be borne by the people. Our fisheries on both the west and east coasts are dwindling. Air pollution is increasing, in some areas to an alarming extent, and more people means more air pollution. Many scientists have declared that continuing acceleration of air pollution will in fifty years have a serious effect upon our climate. Our population of old people is rapidly increasing—indigent old people, sick old people. All these elements mean more homes for the aged, more hospitals, more sewage treatment installations, more water treatment facilities. In short: more taxes.

It is a fact that over-population has never helped Italy, India, or China. It is also a fact that the U.S. is the only country in history which has had an extensive industrial economy and a highly mechanized agricultural economy with which to support a large population. Given a little time I think we can solve most of our major problems if we don't bury ourselves in babies.

On the Need for Slaves

A lot of drivel is written about the iniquity of slavery. Without slavery there would be little community and no family life. One fact of life is that even the poorest of us have one or more slaves. Joe Doakes, ditch digger, makes a slave of his wife or his kids, and usually both. When he comes home at night tired from his work—or dodging it—his wife performs all sorts of menial tasks for him and his kids fetch and carry at his bidding. Joe Bloat, millionaire, does the same thing. Slavery is the compulsory performance of work without *monetary* compensation. Even the chattel slaves of yesteryear had compensation of some sort. Their life was not all toil and tears; there was song and laughter, too.

Much is said and written about the manner in which automation has lightened our labors. Actually automation has made it possible to do much more work in much less time. And there is much more work to be done than ever before to keep a complex civilization like ours going. Every middle-class household—and that in this country means most of them—is filled with gadgets designed to do more work with less labor. But you can't telephone the deep freezer, the electric stove or the dishwasher and tell them you are bringing home a guest or two for dinner. You telephone your wife and she promptly says, "Let's go out for dinner." The gadgets will never take the place of competent servants, and there are no servants any more at any price. So I'm all for a return to slavery. To hell with the gadgets! I'd organize a slave hunt forthwith, if I knew where slaves could be found!

Palletizer

Lathrop Paulson Company, Chicago, has developed an automatic palletizer consisting of three integrated units: a stacker, a pusher, and a taping device. The latter unit applies pressure-sensitive tape across the top of the load to prevent separation of the palletized cases. This unit is the least expensive of any I have examined.

Local Taxes

According to *Fortune*, the lowest per capita state and local taxes are paid in the State of Delaware. Such taxes amount in that state to $49.96. The states with the highest taxes are North Dakota, South Dakota, Mississippi, Vermont, Louisiana, and Oregon, which range from $104.92 to $116.33; North Dakota being the highest. The comparison is, like all statistics, suspect because the sparsely settled states naturally would have the highest per capita rate. Nevada is an exception. It is a sparsely settled state and its tax rate is low because of the haul made by the state through the gambling casinos and the divorce mills.

In making plant-location studies, state and local taxes—local taxes especially—must be studied with great care and imagination, not only with respect to current and past tax rates but also taxing methods

and men—the assessors. Lots of towns entice industries with all sorts of promises in order to sink the tax hooks into them after they are established.

One of my clients was forced to abandon a new plant and move out of a small community, not only because taxes had been doubled every year for five years straight, but also because the town officials were crooked. They could have been bribed if my client had been dishonorable enough to stoop to it. In this case the town was a one-factory town and, in spite of promises to the contrary, my client's plant was loaded with an unjust chunk of the town's total taxes. The town fathers resisted allowing any more industries to locate within the environs of the town because they wanted to keep it a residential town. They also wanted all sorts of public services. So beware of the one-industry town!

I am glad, however, that there are still some strictly residential towns scattered among the industrial towns. And I am glad there are enough people who can afford to live in such towns and pay sufficient taxes to pay for whatever public services they need. I think it would be a good idea to adopt the English "green belt" system. In England where industry is gradually being dispersed, the green belt system provides a ring of residential and farm areas around industrial centers, and no industry is permitted to invade these green belt areas. Because of the lack of such a system the western part of Long Island and the northern part of New Jersey, to mention only two areas, have become industrial slums.

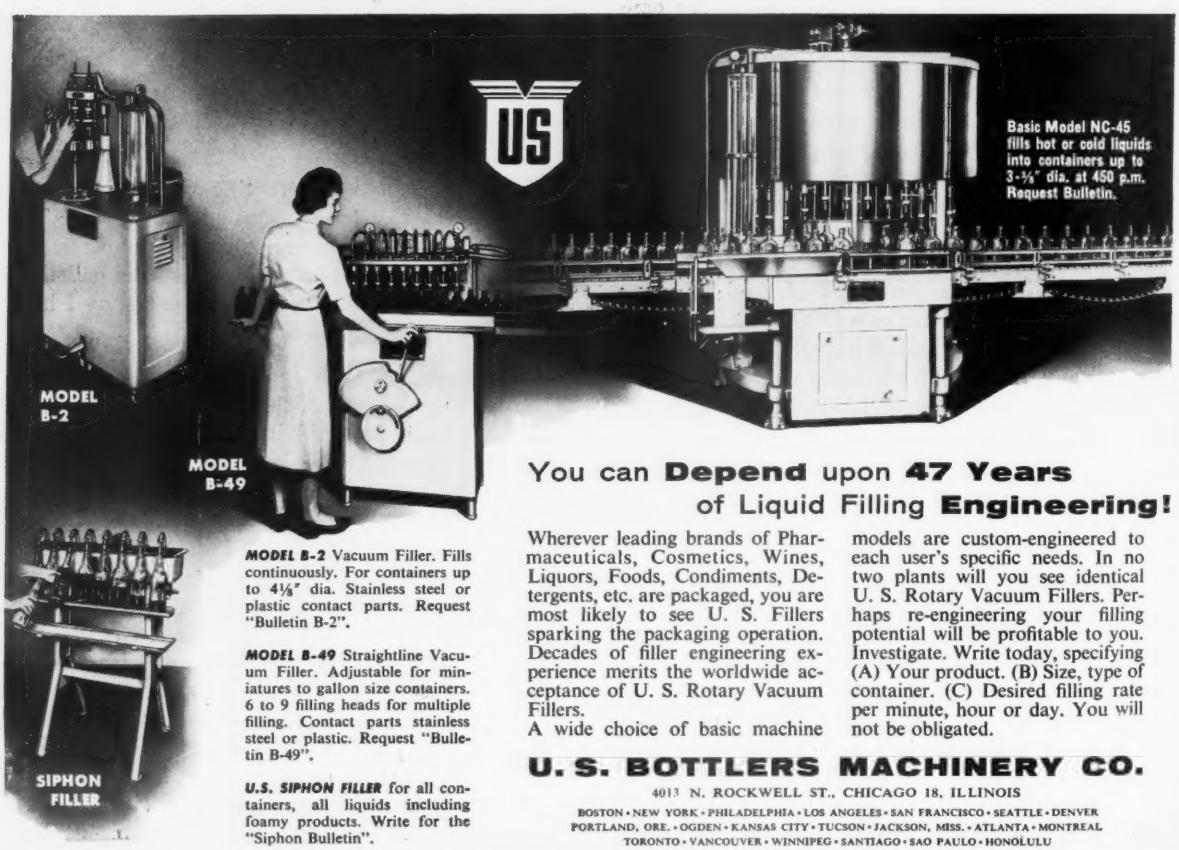
The American Cyanamid company had an interesting experience recently. It tried to establish an office center in the village of Alpine, New Jersey, not too far from its Lederle center at Pearl River. The town fathers of Alpine rejected the opportunity. Reading of this, a school teacher in Wayne, New Jersey, wrote American Cynamid and suggested that the center be located in Wayne. Her very intelligent letter states:

"My identity is immaterial except to say I am a teacher who is anxious to have good schools and sound educational programs, found only in communities where the tax burden is shared by industrial and residential tax income.

"Having taught formerly in Bergen County towns that pride themselves on being 'strictly residential' and thereby limiting the quality of education their taxes can afford, I am now teaching in Wayne Township where planning and goals are more farsighted. The results of this planning show up in the educational facilities you can offer your employes and their children.

"This is sent to you entirely on my own behalf, for it seems a shame you must struggle to convince Alpine of the benefits of your expansion program. You would not have to convince Wayne. They will welcome you with open arms."

When American Cyanamid tried to get into Al-


US
Basic Model NC-45 fills hot or cold liquids into containers up to 3-⅛" dia. at 450 p.m. Request Bulletin.
MODEL B-2
MODEL B-49
SIPHON FILLER

MODEL B-2 Vacuum Filler. Fills continuously. For containers up to 4⅛" dia. Stainless steel or plastic contact parts. Request "Bulletin B-2".

MODEL B-49 Straightline Vacuum Filler. Adjustable for miniatures to gallon size containers. 6 to 9 filling heads for multiple filling. Contact parts stainless steel or plastic. Request "Bulletin B-49".

U.S. SIPHON FILLER for all containers, all liquids including foamy products. Write for the "Siphon Bulletin".

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pine, it recognized that it would have to bear most of the town's tax load and it professed itself willing to do so. This attitude is all right now, but what of the future when Alpine's 900 residents might become 9,000? Of course, American Cyanamid is a big company and can afford to make promises that would be rash for smaller concerns.

Implicit in its endeavors is the fact that American Cyanamid did not have room for its office center at the Pearl River site. Therefore it was forced to disperse its operations. Very few pharmaceutical companies have sites that are large enough. Their former managements lacked vision and failed to buy enough land when the factories were established and the land could be bought for a song. For a long time it has been my practice to recommend the purchase of what seems to some clients exaggerated amounts of land. Some of my clients who refused to follow my advice have regretted their failure to accept it when land was available. Other clients followed my advice and now find themselves with extra land worth 20 and even 30 times as much as they paid for it. Land is a good investment—particularly industrial land. It was always a good investment, even in the doldrums of the Thirties. Now, with the population of this country exploding, land values for residential and industrial purposes will increase at an ever accelerating rate. So buy land!

Glass Boxes

The plethora of glass boxes that are being built everywhere attests the paucity of architectural imagination in this country. Skidmore Owens and Merrill started the fad with the Lever Building in New York. Having struck a new formula, this firm of architects has been building little Lever buildings all over the map. And architects by the hundreds are imitating the original concept.

The cost of maintaining and operating glass buildings never bothers architects. They don't have to pay the shot. Maintenance costs in such buildings are high, because the difference in coefficient of expansion between the glass panels and the metal supporting members is such that a great deal of difficulty has been experienced keeping these buildings rain-proof. Operating costs, especially air conditioning, is enormous. A glass building requires vastly more tonnage of installed refrigeration than a masonry building and, regardless of how much tonnage is installed, the air conditioning does not work when the sun shines on the side walls of a glass building, unless the glass is shaded with louvres or is curtained. Wyeth found that out in a hurry in their new labs.

I was in such a building recently. This building has been in operation for five years. The air conditioning still does not work on the sunny side of the building. In other words, the air cooling system works only when it is not really needed! What did the company president do when the time came to build another buildings? He built another glass box! Same architect. Same result.

It is a sad thing but it is a fact that big-name architects can get away with murder. It flatters Mr. Big's ego when he can say to his friends with studied casualness, "I've just hired Frank Llyod Wright to build a new fatcory for me. He's an expensive guy. But I don't believe in hiring any but the top man in his field!" Of course he doesn't. He doesn't have to pay the shot in any event. The stockholders do.

I am not against architects per se and I am for good architecture. Every factory should look as beautiful as it can be made to look. But beauty does not demand impractical, uneconomical construction or the use of untried, impractical materials. And, used properly, I do not regard glass as an impractical material. A beautiful building can be built of common brick with no other material as adornment, as Frank Llyod Wright proved. I once saw an attractive building made entirely of cinder block. But the blocks had been laid with imagination, which is the most permanent of cements. And imagination is what most architects seem to lack. They prefer to copy. Witness the millions of ranch houses across the country. In general, they display as much imaginative design as there is in a bucket of stale beer. But here and there you can see some ranch houses that are superb, which seems to prove my point: that it isn't the material or the size of a building that makes it outstanding; it is the imagination displayed in the selection and use of materials in its design.

Transportation Costs

It is a matter of keen interest to me that the *Wall Street Journal* should find it possible to publish an article on the work of rate checkers or traffic consultants—often called rate sharks because they are usually paid 50 per cent of what they can recover as transportation overpayments by their clients—as recently as a couple of months ago. Rate auditors have been making killings for the past 30 years. This, in spite of all that has been said and written about the necessity of having a top-flight traffic manager to handle all transportation matters or, in the case of small companies, of having regular rate audits made.

In working with some of the best traffic men in the country on site location projects, I have learned how important traffice management really is. It has an important influence on plant and branch location. It has an important influence on cargo mixes, rate determinations, and combination services. Traffice control is a never ending job. New rates and classifications are issued almost continuously by the Interstate Communications Commission. Consequently, you can never set up a distribution pattern and assume the job to be done for a very long time. It could become obsolete in six months.

Yet, with everybody hollering about distribution costs, I find in a good many sizable plants that all

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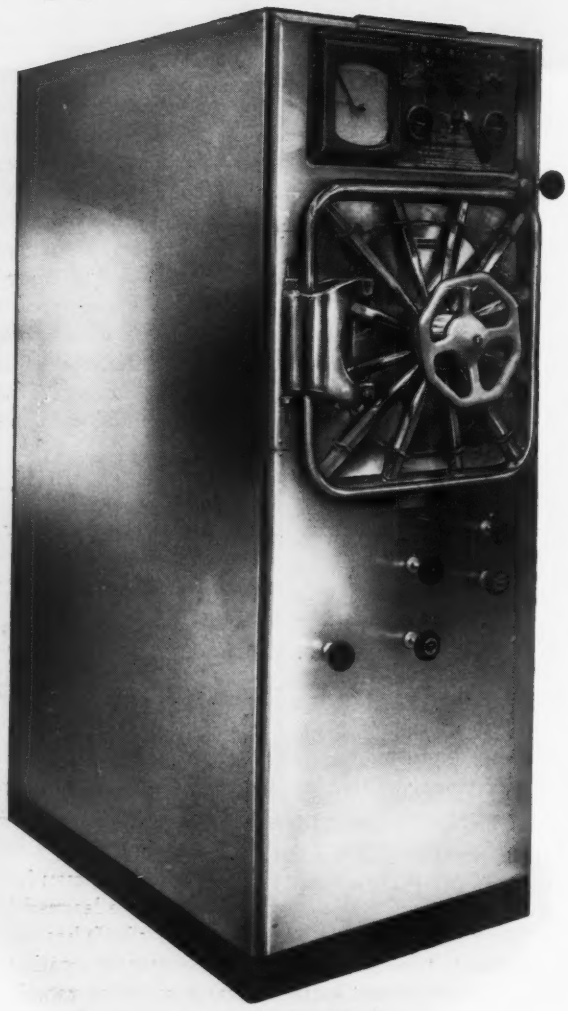

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• The diverse sterilization needs of the *modern* technical laboratory are fully and economically met by the versatility of American Sterilizer Pressure Steam Laboratory Sterilizers.

Accurate, low-temperature processing of heat-sensitive or heat-coagulable media and fluids is readily performed by Amsco's exclusive Isothermal Control which maintains pre-selected chamber temperatures well within the critical tolerance.

The fully automatic Cyclomatic Control assures positive standardization of techniques with a minimum of time and attention from the operator.

Up to 100% greater usable capacity is provided by the square chamber which permits more efficient loading. Installation and maintenance are simpler and less costly because of the stainless steel cabinet.

For steam or electric heat. Chamber sizes 16″x 16″x 24″ or 20″x 20″x 36″.

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World's largest designer and manufacturer of Hospital and Laboratory Sterilizers, Surgical Tables, Lights and Biological Research Equipment

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Write for Amsco's new 16-page brochure SC-318R illustrating a complete variety of standard and special purpose sterilizers for pressure steam or ethylene oxide gas.

traffic matters are handled by the shipping clerks, who are not trained traffic men at all. Many shipping clerks have favorite trucking lines and even favorite railroads to which all shipping is consigned, regardless of routings or rates. Trucking companies are especially generous to shipping clerks at Christmas time.

Every firm large enough should have all transport and branch location affairs vested in a first-rate traffic manager. (They're damn hard to find, incidentally.) If the firm is not large enough to employ a full-time traffic man, its routes, rates, and classifications should be checked periodically by traffic experts, and its freight bills should be audited regularly.

High-Speed Capsule Banding Machine

A newly designed Colton Model 960 Banding Machine for size "0" capsules has been announced by the Arthur Colton Company, 3400 E. Lafayette Ave., Detroit 7, Michigan. It permanently seals hard capsules by applying a one-eighth inch-wide band of clear or colored gelatin at rates up to 300 capsules a minute.

High-Speed Dispersers

Charles Ross & Son Company, Inc., 148 Classon Ave., Brooklyn 5, New York, has issued a new brochure, #8-D, which describes the company's entire line of high-speed, multiple-action dispersers. The Ross dispersers are used to mix, dissolve, emulsify, deagglomerate and disperse all types of thin or heavy paste, including those of high viscosity. The brochure describes the design of the millhead and illustrates its adjustability for coarse or fine dispersion. Laboratory and production size equipment is shown in the removable tank type with variable-speed motor drives and a hydraulic raising and lowering device. A complete specifications chart for sizes and construction details is included.

New Gravity Filler Series

A new model EGR Gravity Filler series has been introduced by Ertel Engineering Corporation, Kingston, New York. The spouts, with seal and drip-proof features, provide for quick horizontal and vertical changeover, and their simple design permits easy dismantling and cleaning. The spout bar adjustment is horizontally controlled by a hand-wheel that is simple to operate. All liquid parts are stainless steel, and balanced action lets the operator use both hands.

The EGR series models will fill cans, plastic bottles, and other standard containers, up to a gallon capacity, with a minimum neck opening of 7/16 inch. Skilled labor is not required to operate the models, and rapid set-up, adjustment, and cleaning are facilitated. The models will not collapse or distort containers, and are particularly superior for filling foaming liquids. Initial cost is relatively low.

Tablet Duster with Static-Eliminating Device

F. J. Stokes Corporation, 5500 Tabor Road, Philadelphia, Penna., has announced a new tablet duster with a static-eliminating device in combination with a light air-stream and vibration, which is said to be three to four times more effective in removing dust from finished tablets than dusters employing only vibrating screens. It can handle as many as 7,000 tablets 13/32 inches in diameter per minute.

The static-eliminating bars produce a high-voltage discharge which ionizes the air, neutralizing the static charge on the dust particles. Since they draw only a small current, they are safe for all operators.

The housing of the duster is designed to fit the tabletting machine worktable; or, it can be supplied with its own pedestal mounted on casters, to make it movable from press to press.

Automatic Can Sorter

Atkron, Inc., is producing a new automatic can sorter, Model CUS 6.5d., which is designed for high-speed unscrambling of cans up to one quart in capacity, in a minimum of space. The Atkron Dunmore has a unique magnetic pulley that turns cans so that all open ends are in one direction ready for the filling cycle.

Models are available to handle all standard cans up to 32 ounces, or any group of can sizes, provided the smallest can is approximately one inch longer than the diameter of the largest can. Rubber bin sweeps and rubber-edged flights protect can finish and open ends.

Requiring the attention of a single operator, the model can handle up to 1,000 6-ounce cans, 750 12-ounce cans, 575 16-ounce cans and 500 32-ounce cans per minute.

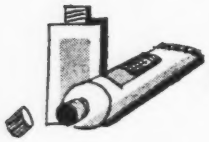
Exclusive distributors are Geo. W. Myer Manufacturing Company, Box 452 Milwaukee, Wisc., or its subsidiary, Economic Machinery Company, 60 Fremont St., Worcester 3, Mass.

Automatic Carton Filling System

FMC Packaging Machinery Division, 4992 Summerdale Avenue, Philadelphia 24, Penna., has introduced a Nerverstop automatic carton filling and sealing system. Maximum speeds and optimum accuracy are obtained by combining volumetric filling with a "built-in" electronic checkweigher equipped to feed-back data and by mechanical, telescoping pockets arranged on the perimeter of a revolving filling head.

Cartons of almost every type can be handled, from one-ounce to three-pound sizes with dimensions from 2⅜" wide by 5⅝" deep to 8" by 11".

Models are available for automatic packaging of free-flowing powders, granules, and flakes at speeds up to 400 per minute, depending upon size and weight of cartons. •



Advancing Therapy

Seventh Annual Antibiotics Symposium

Five new antibiotics plus significant improvements in penicillin and the broadspectrum antibiotic, tetracycline, were reported at the Seventh Annual Symposium on Antibiotics.

Dr. Henry Welch, of the Food and Drug Administration's Division of Antibiotics, was chairman of the symposium.

Sessions opened Wednesday morning, November 4 with a program, "The Challenge of New Drugs to Our Society." Participants were Dr. Felix Marti-Ibanez, Dr. Austin Smith, Dr. Maxwell Finland, Dr. William H. Kessenich, and Dr. John J. Curry.

Scientists at the symposium came from Argentina, Austria, Brazil, Canada, Czechoslovakia, Chile, Ecuador, England, France, Germany, Haiti, Italy, Japan, Mexico, Panama, Peru, Poland, Portugal, Scotland, South Africa, Sweden, and Uruguay, as well as from the United States.

Four special sessions of the conference dealt with the following: pediatrics, venereal disease, dermatology, and methodology for determining and susceptibility of microorganisms.

Among the new antibiotics under discussion were colistin, aspartocin, fervunlin, streprozotocin and rifomycin. New uses were reported on for paromomycin, amphotericin and griseofulvin. Streptonigrin and diazomycin were added to the growing list of antitumor agents.

Seven papers were concerned with developments in synthetic penicillin. A new form of tetracycline, demethylchlortetracycline, was the subject of 11 scientic papers.

Medical science faces its seventh great historical challenge, that of deciphering the ultimate underlying basis for disease, Dr. Felix Marti-Ibanez, professor and chairman of the department of medical history, New York Medical College, told approximately 1,000 scientists at the opening of the Symposium.

"In medicine a dangerous mythology of science is now being created," Dr. Marti-Ibanez said. "This mythology has the same characteristics as ancient mythology, that is to say, overvaluation of the power of the hero—in the present case, the scientific investigator; overvaluation of his weapons or tools—in this case, technology; and confusion of his partial triumphs—the conquest of applied science—with his final goal, which is a better knowledge of nature and of man so as to be able to protect his health and prolong life."

"We must be on guard, lest this mythology of science grow roots and take the place of reality, lest excessive faith in the investigator's invincibility and the power of his technological weapons and excessive glorification of practical scientific victories end in diverting science from its true path, for technology cannot replace basic science."

"Above all, it is necessary to stop experimenting for the sake of experimenting without a definite philosophical purpose. Experimentation is the foundation of science but it must always be guided by ideas, by an intuitive vision of the ideal goal that it is wished to reach. Should it not be so guided, the now developing hypertrophy of pure experimentation will ultimately lead to atrophy of the investigator's imagination.

"The best remedy against the dangers of a mythology of science is for scientists not only to remember that some of the greatest problems of medicine are still unsolved after some six thousand years of written history, but also to maintain a *human* and therefore antimythological attitude, for without it there can be no true progress of science.

"New lines of thought and new programs of research" to develop drugs totally effective against surface infection were mapped out by Dr. Rene J. Dubos.

He presented evidence from his life-long work with germ-killing agents that the key may be to employ antiibotics in tandem with drugs which modify tissue environment. He made a strong plea for intensive study of tissue factors as a first step.

"There is enough general understanding to warrant new lines of thought and new programs of research. It is a fact that the antibacterial drugs in common use are most effective against the acute phases of systemic infection." "The universal practice," he pointed out, "is to look for substances active aginst pathogens at pH7.0-pH7.4 in simple culture media free of inhibitors." "These test conditions favor the discovery of agents active in the blood stream, but they almost prevent the discovery of agents capable of acting in inflammatory and necrotic areas."

"I wonder whether the time has not come to broaden the range of the conditions used in screening tests both *in vitro* and *in vivo*," he continued. "It might save investigators the boredom of rediscovering endlessly and uselessly substances identical or similar to those that other toilers in the same field have discovered before them under exactly the same conditions."

"I would plead also for more research into the host factors which may play a role in inhibiting or enhancing antimicrobial therapy drugs *in vivo* . . . There are several suggestive lines of approach both for

experimental and clinical work," he said.

"Let me mention two examples entirely unrelated, merely as illustrations of the wide range of techniques which probably could be found to enhance the activity of different antimicrobia drugs. One of these examples is provided by the fact that the therapeutic activity of PAS in experimental tuberculosis can be made evident by limiting the dietary intake of methionine," Dr. Dubos said. He suggested that a second approach might be evolved from the boosting of the effects of sulfa drugs against resistant pneumonias with synthetic sugar-like compounds related to the blood groups and types—'chemotactically active' polysaccharide fractions.

Diazomycin and Streptonigrin. Four new chemicals active against cancers in animals have been isolated by scientists of the John L. Smith Memorial for Cancer Research, a research unit of Chas. Pfizer & Co., Inc. These compounds emerged from cooperative screening by Pfizer with the Sloan-Kettering Institute for Cancer Research and the Southern Research Institute. Nothing is yet known about the possible usefulness of the agents in human patients.

The compounds, all antibiotics, were described by Dr. Koppaka V. Rao and associates. Three of them, called diazomycins A, B and C, while in the same chemical family, show different biological activities. The compounds were crystallized and characterized by Dr. Rao. They were isolated from cultures of the same microscopic organism, which is related to those used in producing the antibiotics streptomycin and Terramycin.

All the diazomycins show high activity against several standardized mouse tumors, Dr. Rao reported. In addition, diazomycin B is moderately active against a strain of leukemia in mice.

The fourth anti-tumor substance reported is streptonigrin, a dark crystalline compound in the pure state. It is active against a number of both rat and mouse tumors, particularly against HS#1, a human tumor transplanted into rats, Dr. Rao noted.

In an unusual coincidence, streptonigrin has also shown itself to be a broad-range antibiotic, active against both gram-positive and gram-negative bacteria though it is too toxic for normal antibiotic use. The anti-tumor activity of the substance, Dr. Rao said, parallels the antibiotic activity, and hence can be used as a guide to the purity of the product.

Streptonigrin and all three diazomycins are now undergoing extensive further study. Associated with Dr. Rao in this work were Walter P. Cullen, Samuel C. Brooks, Jr., Max Kugleman, and A. A. Romano.

Fervenulin and Streptozotocin. Two new antibiotics were reported by scientists in the Research Division of The Upjohn Company.

The compounds are fervenulin, which in animal studies shows activity as an anti-trichomonal drug, and streptozotocin, which preliminary test tube and animal observations indicate has good antibacterial activity against many kinds of disease-causing organisms. It is too early to judge their ultimate usefulness in human medicine.

Fervenulin, produced by an actinomycete and isolated from a sample of California soil, appears to be new and different from any of the known antibiotics available for comparison, according to Clarence DeBoer and Thomas E. Eble, Ph.D., senior authors of the two papers reporting on this drug. They found the compound active against at least 23 types of bacteria, including some which attack plants. In varying concentrations, it also showed inhibitory effect against 16 different types of fungi.

In hamsters and mice, fervenulin was reported to have produced 50 per cent cures against trichomonas infections when administered intraperitoneally at a rate of 3.9 milligrams per kilogram of body weight, a relatively low dosage level.

Preliminary observations indicate that streptozotocin has good antibacterial activity against many kinds of disease organisms, including micrococci, diplococci, enterococci, Pasteurella, Salmonella and Proteus species.

Charles Lewis, J. J. Vavra, Ph.D., R. R. Herr, Ph.D., W. T. Sokolski, Ph.D., and L. J. Hanka, Ph.D., senior authors of a group of five papers describing this compound, said also that it has no cross resistance with 10 other antibiotics already commercially available.

The cross resistance factor was checked against novobiocin, neomycin, penicillin, celesticetin, chloramphenicol, erythromycin, kanamycin, carbomycin, polymycin and tetracycline.

Derived by fermentation from a soil sample taken at Blue Rapids, Kansas, streptozotocin was reported to be highly effective in protecting infected mice against a wide range of disease organisms.

The median protective dose of the compound needed to cure 50 per cent of the animals was described as ranging from 1.2 to 5.2 milligrams per day per kilogram of body weight when given subcutaneously and from 2.9 to 6.2 milligrams per day per kilogram of body weight when given orally.

Declomycin. A new broad-spectrum antibiotic effective in significantly lower dosages than its predecessors and active against more bacterial strains, has been described as an "important addition" to the physician's arsenal.

Thirteen medical investigators reported on the new drug, Declomycin demethylchlortetracycline (DMCT). The drug was developed by Lederle Laboratories, a Division of American Cyanamid Company.

Dr. John P. Vineyard, Miss Janet Hogan, and Dr. Jay P. Sanford of the University of Texas Southwestern Medical School, reported on a group of 58 patients suffering from a variety of infections. DMCT, they said, was effective in laboratory studies against more of the bacterial strains commonly causing urinary tract diseases than were previous tetracycline drugs. Among these strains, the investigators said, were *A. aerogenes, Proteus species* and *Pseudomonas aeruginosa*, three gram-negative organisms which tend to be resistant to other tetracyclines.

Additional evidence of the effectiveness of DMCT in stubborn urinary tract infections was offered by Drs. Myron S. Roberts, Harry Seneca, and John K. Lattimer of Columbia-Presbyterian Medical Center, New York; 60 per cent of organisms isolated from their patients, they reported, were more susceptible to DMCT than to tetracycline and in no case was an organism more sensitive to tetracycline. Their compari-

(*Continued on page 708*)

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Compounder's Corner

Mercote Vitamins

A new process that eliminates the unpleasant, inherent flavor characteristics and after-taste of certain vitamins and medicinal chemicals has been developed by Merck Chemical Division, Rahway, N. J. Products treated by the new Merck process are identified by the trademark, "Mercote."

Harold P. Sarkison, marketing director for Merck medicinal products, said this new method—now in use for vitamins—meets an industry challenge and opens entirely new vistas in oral vitamin therapy. At the same time, the new process may have possibilities for application to other medicinal products that present taste problems.

During the past months reaction to "Mercote" has been so extremely favorable that production has been rapidly increased to permit a general offering of the products to the industry. Merck sales representatives are now providing detailed product information, samples and market facts pointing to the possibilities for "tasty" vitamin formulations.

Three vitamins, which previously posed taste problems, are now being supplied to formulators. These are currently offered in the following concentrations: niacinamide (33 1/3 per cent) "Mercote," riboflavin (25 per cent) "Mercote," and thiamine (33 1/3 percent) "Mercote."

Merck has been working for many years to help solve taste problems in vitamins and other medicinals. Blaze T. Palermo and Hoyland A. Wands of Merck's technical service department defined the problem which led to the development of these unique products by Edward J. Hanus and L. Everett Stoyle, Jr., of the product development laboratories.

"Mercote" vitamins are supplied as powders having exceptional freedom from odor and taste. They contain U.S.P. vitamins so that finished formulations may be labelled in terms of U.S.P. vitamin content.

Aerosol Particle Size

Dr. Joseph L. Kanig, associate professor of pharmacy at the Columbia University College of Pharmacy and director of the new aerosol research laboratory established there, delivered a paper on "Measurement of Particulate Solids in Aerosol Systems" at the October 7 meeting of the New York Chapter of the Society of Cosmetic Chemists. He reviewed the relationship between particle size and product efficacy in both cosmetics and pharmaceuticals in which particle size can be directly related to rate of solution, speed of absorption, covering and protective ability, color, and elegance. In inhalation therapy, control of particle size can determine the location in the respiratory system where the medication will be deposited. Particle size in topical therapy controls maximum uniform coverage, rate of release of the medication, and the characteristics of the film deposited on the skin.

Particle size measurement methods are direct or indirect. Microscopy and sieving are examples of direct measurements; methods of preparing the sample for measurement have considerable influence on the accuracy of the results. Indirect methods of measurement include sedimentation techniques, impaction and inertial techniques, and optical methods, all with their specific areas of application and limitations. An instrument has recently been developed by Dr. Kanig which employs a combination of light scattering and gravitational sedimentation methods and has given reproducible results in checking pressurized suspensions.

Silver Germicides

Two patents dealing with germicidally active soaps which have been published within the last year may forecast new developments in the field of deodorant soaps. The active ingredients of these soaps are compounds of silver. One of the patents, granted to Baldwin (U.S. Pat. 2,864,-768), covers the reaction products of silver halides with ethylene thiourea. The other, granted to Lutz and Sharpe (U.S. Pat. 2,864,769), covers silver benzene sulfinate and related silver salts. These compounds, which owe their antibacterial activity to the silver content, are quite different in chemical type from the antiseptics which are currently employed in soaps. The latter include hexachlorophene and bithionol, which are chlorinated bis-phenols and trichlorocarbanilide, which is a nonphenolic compound.

The compounds patented by Baldwin as antiseptics for use in soaps are complexes of silver halides with ethylene thiourea. The complex formed with silver chloride contains three molecules of ethylene thiourea to one molecule of the halide. Ethylene thiourea also reacts with silver bromide and silver iodide, though in different proportions. The complexes are easily prepared by adding the silver halide to an aqueous solution of ethylene thiourea and heating. The complex salt crystallizes from the solution when it is concentrated by evaporation.

While all of the silver halide complexes with ethylene thiourea show marked germicidal activity in soap, the silver chloride complex is outstanding.

The antiseptic activity of the silver halide complexes with ethylene thiourea is surprising in view of the weak antiseptic effect of the colloidal silver halides. The complexes must act rapidly in order to have a

noticeable germicidal effect in the brief time that the soap is in contact with the skin. The cyclic structure of the thiourea derivative seems to be essential for high germicidal activity in soap. Compounds obtained by the reaction of silver chloride with acyclic derivatives of thiourea, e.g. 1,1-dimethyl thiourea, have little or no antiseptic activity in soap.

The silver chloride complex with ethylene thiourea provides adequate antibacterial activity when used in soap at a concentration equivalent to 500 p.p.m. of silver. Soaps containing the silver complex are said to have substantially the same mildness as the soap base. There is no information in the patent as to whether these silver complexes are sensitive to light. Since they are used at a low concentration they probably would not produce the discoloration in white soaps which might be anticipated from silver compounds.

Silver benzene sulfinate, the subject of the patent by Lutz and Sharpe, is a simple organic salt of silver which has a germicidal effect in soap. The salt has the formula $C_6H_5SO_2Ag$. A bacteriological test cited in the patent demonstrates the rapid action of silver benzene sulfinate against bacteria in the presence of soap.

Silver benzene sulfinate is toxic to fungi as well as to bacteria. In a test against a mixture of fungi commonly found in air samples, the silver salt in a soap solution prevented the growth of all of the organisms on nutrient agar.

The concentration of silver benzene sulfinate recommended for antiseptic soaps is 500 p.p.m. of silver, the same as in the case of the silver chloride-ethylene thiourea complexes. The silver salt of *o*-toluene sulfinic acid shows some antibacterial activity as would be expected from its close relationship to the benzene sulfinate. However, it is less effective than silver benzene sulfinate in the presence of soap.

—*Schimmel Briefs*, No. 294

Modifying Drug Action

At a symposium of the British Pharmaceutical Conference on September 24, Dr. R. P. Edkins discussed pharmaceutical considerations in modifying the duration of drug action.

In unmodified oral preparations, speedy onset of action is dependent upon rapid disintegration, and it is doubtful, even now, whether its importance is fully appreciated. In various countries the permitted disintegration times of official tablets differ widely; the British Pharmacopeia with a few exceptions requires 15 minutes as a maximum, while the United States Pharmacopeia specifies times varying from 15 minutes to two hours or even longer. It is possible for a tablet to pass the disintegration test of both the British and United States Pharmacopœias by disintegrating to granules which pass the 10 mesh wire sieve specified, while the granules themselves may disintegrate only slowly with consequent slow release of the medicament.

Hydrophobic lubricants such as magnesium stearate or talc delay disintegration and though often more effective than starch the use of the latter has the advantage that it assists, rather than impedes, disintegration.

The disintegration time of tablets may change on storage; usually to lengthen though occassionally it becomes shorter. Compression at the time of manufacture is of importance; excessive compression leading directly to increase in disintegration time.

An early attempt to prolong drug action in oral preparations involved the ingestion of two tablets or capsules simultaneously. That was quickly simplified by preparing a tablet made up of a core, containing one dose, coated with a delaying layer, with a layer containing an initial dose on the outside.

A considerable advance was the use of a large number of small pellets coated with varying thicknesses of a coat intended to delay the release of the drug, some pellets being left uncoated to provide the initial dose, the mixed pellets being supplied in hard gelatin capsules.

Tablets have been prepared either from a mixed granulate, part of which has been treated to retard disintegration or from coated pellets using a wax or fatty base to prevent damage to the protective coating on compression, but scoring or deformity of the coating may occur during tabletting causing variation in the rate of release of the drug.

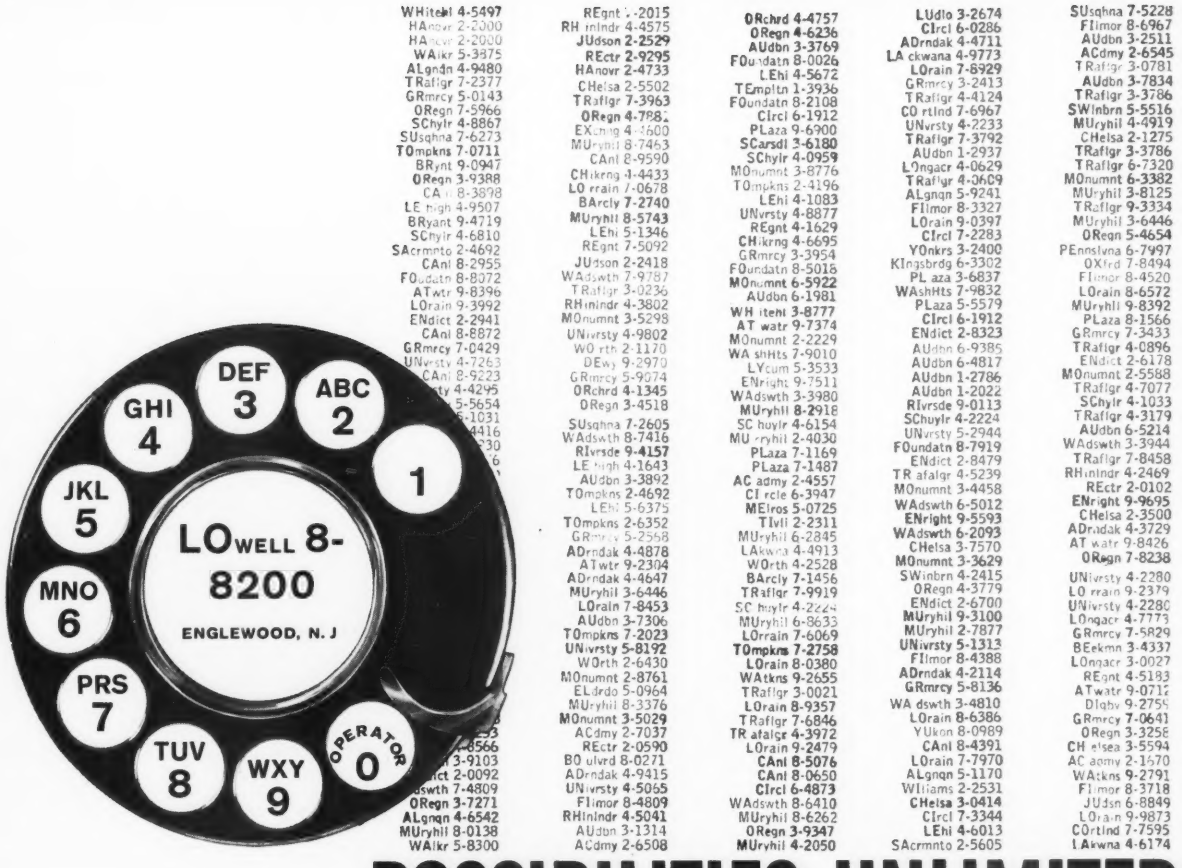
The most fully exploited chemical method to obtain slow release in oral preparations involves combination of an acidic or alkaline drug with an ion-exchange resin. Alkaline drugs combined with cation exchangers of the sulphuric acid type to give a resinate release the drug as the hydrochloride in both stomach and intestine and since elution is dependent only upon ion concentration which does not vary widely in the digestive juices the release rate is fairly constant. A more regular rate of elution is obtained if incompletely converted resin, or a mixture of the resinate with the hydrogen form, is used, since this depresses the initial release rate. Acidic drugs combined with an anion-exchanger release the drug in the acidic form in the stomach, and as the sodium salt in the intestine, but have not yet been widely used.

The methods which have been employed to increase the duration of activity of parenteral preparations include: physiological modification of absorption or excretion; modification of the solvent; chemical modification of the drug; adsorption of the drug; the use of suspensions, and implantation pellets.

When a drug is soluble both in water and in an oily vehicle, as, for instance, with œstrone in low concentration, the oily solution is significantly more long acting than the aqueous one. For water-soluble drugs, the addition of gelatine, carboxymethyl cellulose and polyvinylpyrrolidone to the aqueous injection has been claimed to increase the duration of activity of some and to be ineffective with others.

Chemical modification is directed to either the production of insolubility or delay in utilization. The former is well exemplified by penicillin and insulin.

Crystal suspensions of steroid hormones are not as long acting as might at first be considered probable. A crystal suspension of testosterone propionate is intermediate in duration of effect between the oil solution and an implantation pellet and while pharmacological work has shown that both duration and response is about doubled when the crystal suspension is compared with the oil solution of this steroid ester, the response to the crystal suspension declines rapidly. The duration of action of such suspensions varies directly with the crystal size.



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Trade Literature

Propellant Blending

Five methods for blending aerosol propellants are analyzed in a technical article published by Union Carbide Chemicals Company, Division of Union Carbide Corp., 30 East 42nd St., New York City 17. The article was based on a paper presented by E. E. Husted of Union Carbide at a recent meeting of the Chemicals Specialties Manufacturers Association.

The methods discussed are: weigh tank, proportioning pumps, the displacement meter, radiation equipment, continuous proportioning. The article is illustrated and includes tables.

Biochemicals for Research

Mann Research Laboratories, 136 Liberty Street, New York City 6, has released its latest Reference Guide and Price List No. 125.

A comprehensive catalogue listing over 3,000 products, it also provides complete specification of quality characteristics for most items listed.

Tablet Binder and Coater

A bulletin on the uses of Plasdone, pharmaceutical grade of PVP, in pharmaceutical tablet manufacture has been released by Antara Chemicals, Division of General Analine & Film Corp., 435 Hudson St., New York City 14. It describes techniques for the use of Plasdone as a tablet binder and coating material, which is available as a free-flowing powder that is stable, odorless, tasteless and physiologically acceptable. The 16-page bulletin, Plasdone in Tablet Manufacture, gives general information on the material and sample granulation formulas for a variety of medicines.

Teflon Stopcock Plugs

The Kimble Glass Company, subsidiary of Owens-Illinois, Toledo 1, Ohio, has published a bulletin, Kimble Laboratory Glassware with Teflon Stopcock Plugs, describing its Kimax line of burets, separatory funnels, and stopcocks of Teflon. The 12 pages are illustrated.

Iodine

Iodine Abstracts and Reviews, Vol. 4, No. 3, published by the Chilean Iodine Educational Bureau, Inc., contains a table of physical properties of iodine and its inorganic compounds, listing 687 substances, in 55 pages. This is a revised and enlarged edition of the table published in 1951 in Vol. 2, No. 2, and is available from the Bureau, 120 Broadway, New York City 5.

Laboratory Refiner

A four-page, illustrated bulletin describing a new type of laboratory refiner has been issued by Sprout, Waldron & Company, Inc., 130 Logan Street, Muncy, Penna. Bulletin 17-B describes the advantages, applications, construction, and operation of a compact single disc swinghead precision-built pulp refiner.

Schematic drawings showing three different methods of feeding the refiner, engineering drawings, installation photographs, and close-up shots showing construction features are included.

(*Continued on page 706*)

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Perfumer's Shelf

Natural Vanilla

Madagascar, the chief source of natural vanilla imported into the United States, is looking to Washington where the Food and Drug Administration is deliberating the question of whether ice cream manufacturers should be allowed to call ice cream vanilla if it is made with artificial vanilla.

The final decision is vital to Madagascar, considering the fact that Americans consume about 400,000,000 gallons of ice cream labeled vanilla each year. The F.D.A. hearings stem from the fact that less vanilla ice cream has been made with real vanilla in recent years than previously.

Trade sources estimate that 15 per cent of the vanilla ice cream consumed is made of pure vanilla, 70 per cent of a mixture of pure vanilla and artificial flavoring and 15 per cent of straight artificial vanilla.

During the last several years the F.D.A. has issued proposed standards that in effect said that when consumers bought vanilla ice cream they had the right to expect that it was made with true vanilla.

Should these standards be adopted, ice cream that contained imitation vanilla would have to be named to show that it was made with artificial flavor. The F.D.A. reportedly is almost ready to issue its final order, which will go to the Secretary of Health, Education and Welfare for his signature.

Last year, the United States imported $7,176,000 worth of vanilla, representing nearly 1,000,000 pounds from Madagascar. This was 73 per cent of all the vanilla imported in 1958. Most of the rest came from Mexico.

Coffee is Madagascar's chief export, but vanilla exports are a close second. The island also grows rice, tobacco, cloves, sugar, bananas, maize and coconuts. In 1958 the island exported 105,397,000 pounds of green coffee worth $45,622,000 and 965,352 pounds of vanilla valued at $8,420,000.

However, in the first six months of 1959, coffee exports were only 24,061,000 pounds at $7,112,000, while vanilla exports grew to 606,100 pounds worth $5,744,000.

The world capital of vanilla is a small town, Antalaha, on the northeast coast of Madagascar. Through this primitive port, at the edge of a jungle, some 176,000,000 vanilla beans begin their journey to the United States, each year.

Vanilla comes from the fruit, or bean, of a tropical orchid that thrives in the hot, humid climate of Madagascar. The blossoms of the plant must be polinated by hand if they are to bear fruit. Once the beans are harvested they must be carefully cured over a period of six months before the vanilla flavor and aroma is formed.

To guard against theft, growers painstakingly brand each bean. The brands are made with a cork into which each grower has placed pins differently. When the beans are punctured the marks are distinctive. The punctures form permanent scars.

Should the F.D.A. rule that pure vanilla must be specified for vanilla ice cream, Madagascar sources say there would be extensive new plantings immediately. The results of this potential increase, however, would take about three years to show in exports because it requires that long to bring a vine to fruit.

—J. Dunn, *The New York Times*

Synthetic Aromatics

Dr. H. E. Eschinazi of Givaudan-Delawanna reported to the Division of Organic Chemistry at the 136th ACS National Meeting on synthetic methods for the preparation of useful aromatic chemicals.

Ozonization of 3-p-menthene gives good yields of the ketoaldehyde 3,7-dimethyl-6-oxo-octanal. Hydrogenation, followed by dehydration, gives a mixture of citronellol and rhodinol. Ozonization of 1-p-menthene gives 3 - isopropyl - 6 - oxoheptanal which can be internally condensed to methyl (4-isopropyl-cyclopentenyl) ketone with a spicy-hay odor. Hydrogenation of this compounds gives the alcohol 1-(3-isopropyl-cyclopentyl)-1-ethanol.

An improved synthesis of irone reduces the number of steps in the synthesis from eight to five. Ozonization of *alpha*-pinene leads to pinonic aldehyde which is converted catalytically into a new ketone, pinonone, which, when treated with sodium acetylide, leads to 3-(2,2,3-trimethylcyclobutyl)-but-1-yn-3-ol. Heating with ethyl acetoacetate leads to 2-(2,2,3-trimethylcyclobutyl)-hepta-2-4-dien-6-one. This is converted to irone by prolonged contact with phosphoric acid.

The synthesis of patchoulione also involves ozonization. The sesquiterpene *beta*-patchoulene is treated with ozone and then purified by means of chromatography to give patchoulione with an ambergris-like odor. Of major significance is the fact that the ozonization reactions give high yields of the ketoaldehydes.

Terpinenol

Terpinen-4-ol has been recorded in quite a wide variety of essential oils. The levorotatory form occurs in the oils of *Eucalyptus dives* and *Xanthoxylum rhetsa* while the dextrorotatory form has been recorded in a Norwegian berry oil and in the oils of *Elettaria cardamomium*, nutmeg, cypress, sho-gyu, *Piper cubeba*,

Melaleuca linarifolia and *M. alternifolia, Juniperus occidentalis* Hook. Racemic or partly racemic material was obtained from *Pinus sylvestris, Libocedrus bidwillii* and *Xanthoxylum rhetsa.*

On treatment of a number of oils containing terpinen-4-ol with boric acid a crystalline borate, with unusual resistance to alkali has been obtained.

This has been found to be the *ortho*borate of terpinen-4-ol. It was eventually saponified with boiling 50 per cent caustic potash but is readily hydrolyzed with boiling 60 per cent acetic acid.

The alcohol, regenerated from the borate was characterized as its α-naphthylurethane m.p. 107-108° and by hydration to terpinene terpin m.p. 137°, oxidation to p-menthan-1,2,4-triol m.p. 128-129° and hydrogenation to p-menthan-4-ol, m.p. 53°.

The 3,5-dimitrobenzoate formed colorless plates m.p. 120-121° from light petroleum.—A. Blumann and G. J. H. Melrose, *P.E.O.R.* 50:769, 1959

New Fragrance Compounds

Aromatic Products, Inc. announces a new fragrance called "Myralia." It is a blend of light, floral top notes with a clean, fresh and long-lasting background. This fragrance may be used in shampoos, powders, bath oils, bubble bath, sachet, hair oil, pomade, creams and lotions.

The company has also announced "Tibalia." Its warm character is said to capture the atmosphere and appeal of the Orient. It has been designed for use in powders, lotions, bath oils and bubble bath preparations, shampoos, pomades and hair oils.

Sphaeranthus Indicus Oil

The plant *Sphaeranthus indicus* is indigenous to India and belongs to the N. O. Compositae. It is a medicinal herb which grows plentifully in the fields of Northern and Southern India. It is considered to be stomachic, a stimulant and a demulcent. The distilled water prepared from it like rose water is recommended by the Ayurvedic practitioners for bilious affections and for the dispersion of tumors. The flowers are highly esteemed as alternatives, refrigerants, tonic and are useful as blood purifiers in skin diseases. The essential oil from the plant has not, so far, been examined for its aromatic constituents although the physical properties have been determined.

On steam distillation by K. K. Baslas (*P.&E.O.R.* 50:765, 1959) the herb yields a deep cherry colored essential oil in 0.01 per cent yield. It contains methylchavicol, alpha-ionone, d-cadinene and p-methoxy cinnamaldehyde as the major constituents, while ocimene, alpha terpinene, citral, geraniol, geranyl acetate, Beta ionone(?), sphaeranthene, indicusene and sphaeranthol are present as minor constituents.

Synthetic Musks

In a recent paper a series of new indane derivatives with a musk odor was described. In this series the compound with the strongest musk odor was found to be 4-acetyl-1, 1-dimethyl-6-t-butylindane.

It seemed interesting to M. G. J. Beets, W. Meerburg and H. Van-Essen (*Rec. Trav. Chim.* 78:570, 1959) investigate whether the non-aromatic ring in the indane system is a requirement for the musk odor or whether it only serves as a convenient carrier for some of the essential substituents. The latter was found to be the case; 3,5-di-t-butyl-acetophenone, a lower homolog in which the non-aromatic ring has been opened while the two quaternary carbon atoms and the acetyl group are left intact, is a strong musk.

The corresponding aldehyde too is a strong musk, while 3,5-di-t-butylpropiophenone is a musk of intermediate strength. Homologs with larger acyl groups were found to be almost or completely odorless.

The effect of an additional methyl group in the benzene nucleus was studied in one case; 2-methyl-4,6-di-t-butylbenzaldehyde has a somewhat modified musk odor of intermediate strength.

The non-aromatic ring in indane derivatives is not essential for the odor. A benzene nucleus carrying some bulky groups, for which t-butyl groups seem to be especially suitable, is sufficient to produce musk odor, provided that a ketonic or aldehydic carbonyl group is also present, preferably in a sterically unhindered position.

Some compounds in which the carbonyl group is sterically hindered to such an extent that it does not react with carbonyl reagents possess no musk odor, although their isomers or homologs with more readily accessible carbonyl groups are musks.

Replacement of the carbonyl group by a different functional group, such as nitro, nitrile or alkoxycarbonyl, does not necessarily destroy the musk odor, but reduces its intensity to a considerable extent.

The musk odor is strongest when the carbonyl group is attached to the benzene nucleus. Interposition of a methylene group weakens the odor considerably, but, at least in one case does not destroy it.

Kam-Seh-Chang Oil

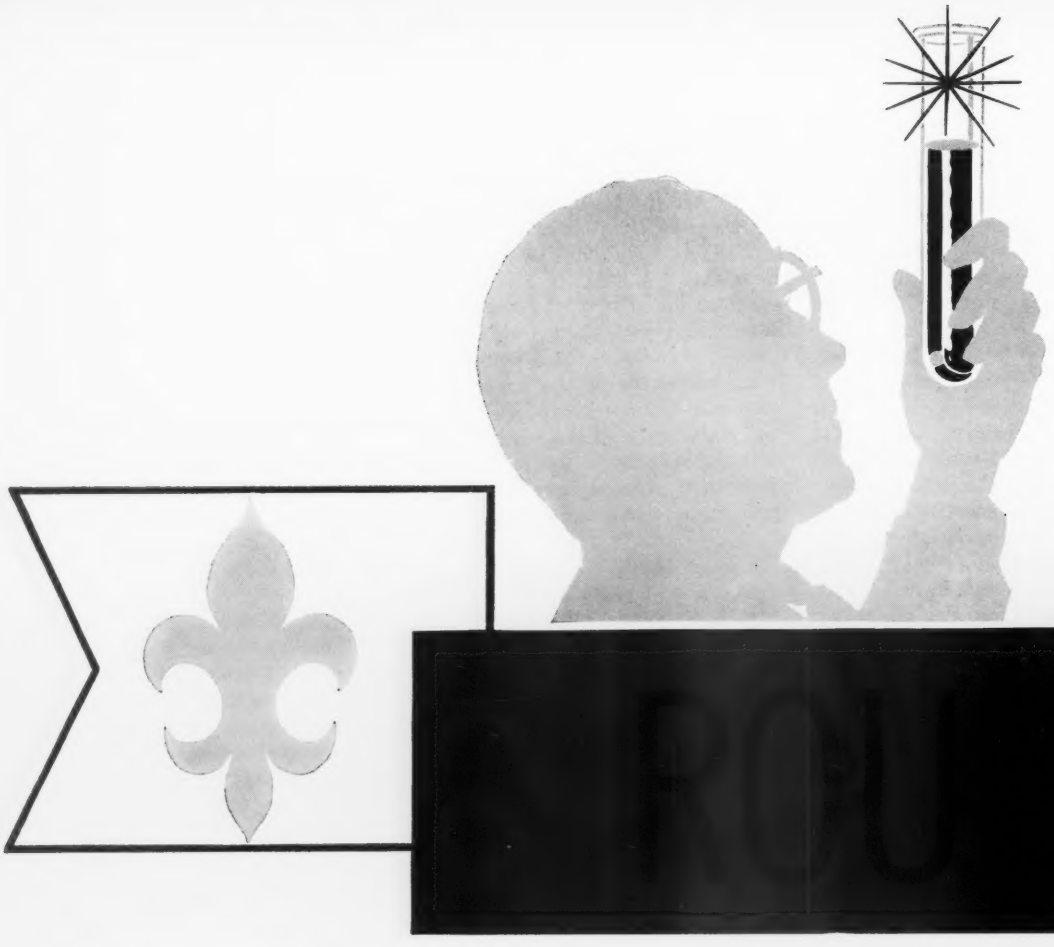
Kam-Seh-Chang grass, so called by the natives in Taiwan, belongs to the family of the Araceae, and grows wild abundantly in the wet parts of the island. This grass closely resembles *Acorus gramineus*, Soland. In appearance, however, this grass has no leaf veins and contains an aromatic essential oil which is quite different from the oil of *Acorus gramineus*, Soland, containing asarone palmitic acid and phenols.

This grass is a perennial plant, and may be harvested twice yearly. The average weight of the herb is 125 gr. and the yield of distilled oil is 0.5 per cent on freshly cut leaves.

A careful examination of the oil has been made by Wei-Hsien Huang (*P.&E.O.R.* 50:673, 1959). By means of fractional distillation and chemical procedures the following results were obtained: methylchavicol $C_{10}H_{12}O$ was discovered to be the main constituent of the oil to the extent of 95.0 per cent and in addition 2.0 per cent of terpenes and 2.6 per cent of sesquiterpenes were found.

Rose Oil Alcohols

Several alcohols have been detected in rose oil. First among these in quantity is citronellol, which is also its main component. Some experts go even so far as to assess the rose oil by its citronellol content. Second in importance is geraniol. Nerol, the geometric isomer of geraniol, is also a component of rose oil. The other alcohols found are linalool, phenylethyl alcohol, farnesol and ethyl alcohol.



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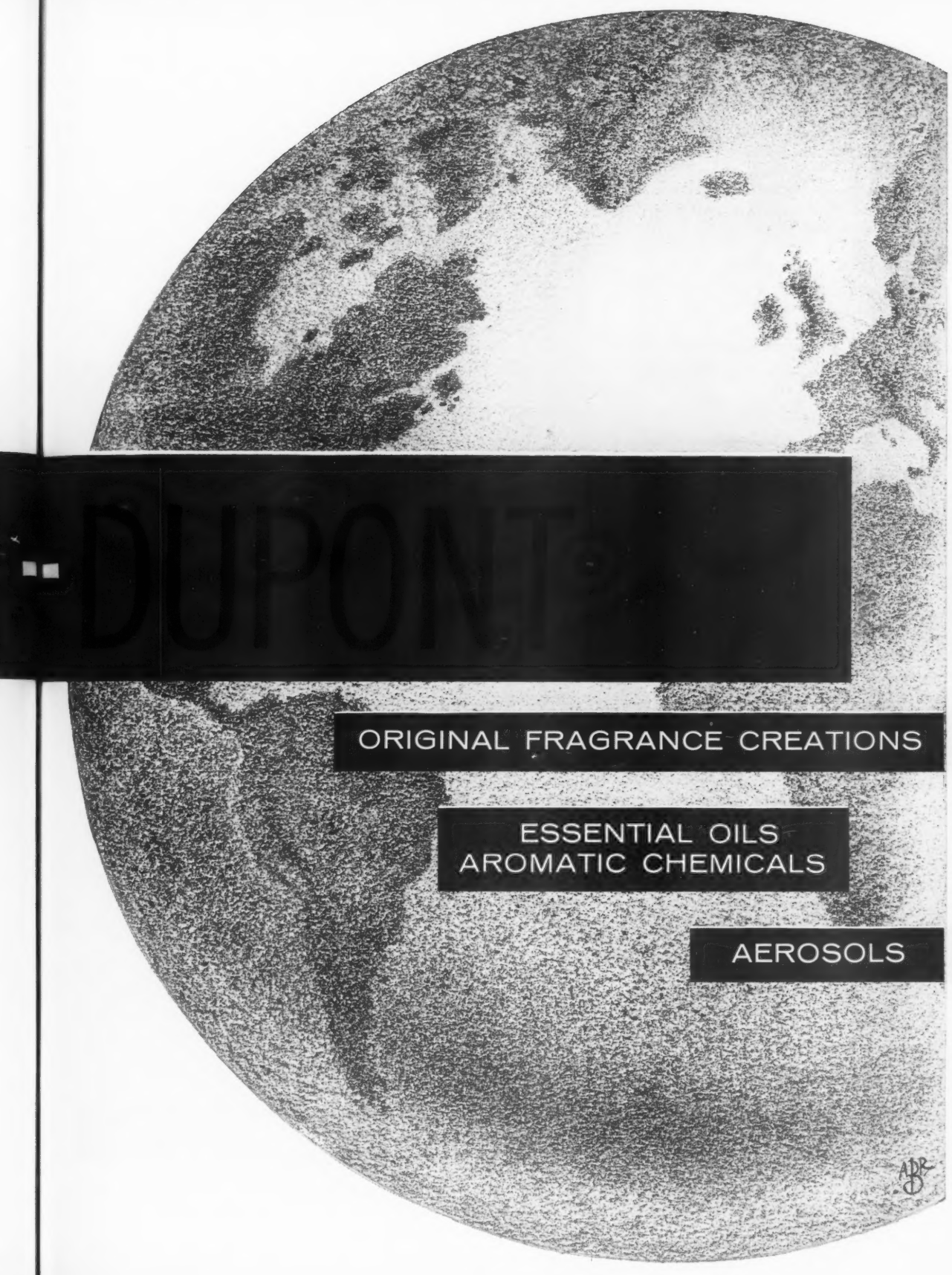
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Industry's Books . . .

Industrial Gums, *edited by Roy L. Whistler, Purdue University, 766 pages, Academic Press, New York, (1959), cloth,* **$25.**

This book is a collection of practical information on industrial gums, prepared in such a way that it may be useful to research workers, chemical engineers, technical sales personnel and legal people who wish to learn more about gums. The chapter headings show the large scope of the work: Agar; Danish Agar; Algin; Carrageenan; Fucoidam; Laminaran; Some Lesser Known Seaweed Extracts; Chitin and its Derivatives; Gum Arabic; Corn Hull Gum; Larch Arabogalactan; Gum Ghatti; Guar Gum; Gum Karaya; Locust Bean Gum; Pectin; Quince Seed, Psyllium Seed, and Flaxseed Gums; Tamarind; Ti; Gum Tragacanth; Wheat Gums; Dextrans; Methylcelluolose and its Derivatives; Hydroxyethylcellulose; Ethylhydroyethylcellulose; Sodium Carboxymethylcellulose; Starch Amylos; Starch Amylopectin; Starch Dextrins; Starch Hydroxyethyl Ethers and other Starch Ethers.

The Thyroid Hormones, *by Rosalind Pitt-Rivers Ph.D., and Jamshed R. Tata, M.Sc., with a chapter on Diseases of the Thyroid by W. R. Trotter, D. M. Oxon, 247 pp., Pergamon Press, New York, (1959), cloth,* **$7.50.**

This is an authoritative summation of present-day knowledge in this subject and, in addition, it is an appreciation of past work providing research workers in the fields of thyroid physiology and biochemistry with an extensive source of reference to the recent literature. It includes an introduction in which is given a brief historical survey of the development of knowledge of the thyroid gland from the early 19th Century onwards. The book attempts to discover which hypotheses concerning the biosynthesis of thyroid hormones, mode of action, and the aetiology of thyroid disorders have received experimental support.

How To Sell The Supermarkets (for non-food manufacturers and distributors), *By Julian H. Handler, Editor, Supermarket News, 181 pp., 8-¾" by 5-¾", Fairchild Publications, Inc., New York, (1959), cloth* **$6.50.**

Supermarket sales of non-foods are soaring into the billions of dollars. As a result, manufacturers of soft goods, housewares, health and beauty aids, and other lines are faced with new questions. This book describes the opportunities and the problems of supermarket distribution. Decisions on packaging, pricing, and promotion are all analyzed. In addition, there are valuable lists of supermarket chains, wholesalers, and rack jobbers.

Orientation To Pharmacy, *Henry M. Burlage, Ph.D., Editor, University of Texas, and Charles O. Lee, Ph.D., Ohio Northern University, L. Wait Rising, Ph.D., University of Washington, The Blakiston Div., McGraw-Hill Book Co., Inc., New York (1959) 306 pp., cloth,* **$6.95.**

This book should serve to introduce the student of pharmacy to the professional subjects he will take up in his academic program. It is a manual or a guide to the study of pharmacy. Such a book is of an orientative character, to assist the student to learn in a general way the professional and commercial aspects, requirements, and opportunities of pharmacy.

The Performance of Lubricating Oils, *by H. H. Zuidema, Products Application Department, Shell Oil Co., ACS Monograph No. 143, 205 pp., Reinhold Publishing Corp., New York, (1959), cloth,* **$7.**

This new edition of an outstanding monograph summarizes and evaluates the wealth of data on the performance characteristics of lubricating oils under various conditions. It incorporates the many papers on the subject published since the first edition in 1921.

International Pharmacopoeia (First Edition Supplement), *Published by World Health Organization, Geneva, Distributed by Columbia University Press, New York (1959), 224 pp., Cloth,* **$5.00.**

The first edition of the International Pharmacopoeia, Volumes I and II of which appeared in 1951 and 1955, has just been completed by the publication of a Supplement containing a further 94 monographs and 17 appendices. The monographs include specifications for some hormone preparations, antimalarials, and antibiotics not given in the earlier volumes, for the contrast media acetrizoic acid and iopanoic acid, and for certain pharmaceutical forms of the antibiotics described in volume II. As in volumes I and II, the appendices contain lists of reagents, tables of doses, and descriptions of assay methods. In addition, they deal with various subjects not covered in the previous volumes, for instance, the preparation of buffer and isotonic solutions, the determination of *p*H and of resistivity, and the testing of glass containers for injections. They also include a revised list of International Biological Standards and Reference Preparations as well as a list of so called authentic chemical substances, that is, substances needed for reference purposes which can be characterized by physico-chemical methods. Some amendments to volumes I and II are presented in an annex and, finally, a detailed index to the whole of the first edition is provided.

Source Book of the New Plastics, *Edited by Herbert R. Simonds, Consulting Engineer, Stepney, Conn., 354 pp., Reinhold Publishing Corp., New York, (1959), cloth,* **$10.**

Here are the new plastics, their properties, production, price, applications and selection. Sixty plastics-producing companies contribute articles describing their own materials. These materials include the seven new primary plastics of 1958. The book also describes the significant recent improvements in established plastics, and the 100 most important patents issued in the plastics field for 1958. It also contains the first and only survey of federal-sponsored research in plastics, which was made by James Kanegis of the Department of Commerce.

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Skin Research

Sunlight and the Skin

The Committee on Cosmetics of the American Medical Association, at its Clinical Meeting in Dallas on December 2, is holding a Symposium on Sunlight and the Skin. The morning session, with Dr. Stephen Rothman as chairman, will include papers on "Physical Factors in Sun Exposures" by Dr. Farrington Daniels, Jr. of the University of Oregon Medical School; "Experimental Photobiology" by Dr. Harold F. Blum of the National Cancer Institute; "The Physiological and Pathological Changes in Sunburn and Suntan" by Dr. Allan L. Lorincz of the University of Chicago; "Problems of Solar Hypersensitivity and their Pathogenesis" by Dr. Rudolf L. Baer of New York University.

Dr. Raymond R. Suskind is scheduled as chairman of the afternoon session. Papers include "Diseases Aggravated by Sunlight" by Dr. Kenneth H. Burdick of the Cleveland Clinic; "The Sunlight Factor in Aging and Skin Cancer" by Dr. J. B. Howell of the University of Texas Southwestern Medical School; "The Prevention and Management of Harmful Effects Induced by Sunlight—Physical and Chemical Sunscreens" by Dr. John M. Knox of Baylor University; "The Use and Abuse of the Psoralens" by Dr. S. William Becker of the University of Illinois College of Medicine.

Treating Acne

Treatment with the antibiotic triacetyloleandomycin produced good to excellent results in 79 out of 85 cases (81 per cent) of acne, Dr. William J. Morginson and Dr. Y. D. Eskelson told the seventh annual Antibiotics Symposium.

Each patient was given 250 mg. of the antibiotic four times a day for four to eight weeks. The patients were selected on the basis of laboratory tests of the sensitivity of the bacteria involved to antibiotics.

An additional 85 patients were given oleandomycin. Of this group, 54 (64 per cent) were judged to have excellent or good therapeutic results.

"Follow up revealed recurrences of acne in many instances when the drug was stopped," Dr. Morginson noted. "We conclude that triacetyloleandomycin is an important addition to the therapeutic regime of pustular and cystic acne, but older therapeutic measures are required to hold the gains attained by the antibiotic."

Infant Skin pH

Determinations of pH of the skin surface have been made by J. M. Beare et al. (*Brit. J. Dermatol.* 71: 165, 1959) at 34 body sites on each of 203 children (100 boys and 103 girls) aged 1 to 7 days. None had skin disease and the sample is believed to be representative of children of this age in Northern Ireland.

The 6902 determinations were made by two observers in similar environmental conditions using a Marconi direct reading pH indicator. The accuracy of a determination was of the order of ± 0.2 pH units. The design of the experiment was such that the minimum differences likely to be detected, between two sub-group means, as significant ($P<0.05$) were 0.15 pH units between sex means for all sites combined, 0.23 pH units between sex means for a given site and 0.12 pH units between site means for both sexes combined.

For all sites combined, the sex means were not significantly different (6.12 and 6.04 pH units for boys and girls respectively). Only two sites, the left and right anterior thighs, had significantly different means for the sexes. The difference, 0.26 pH units, in each case was small enough to be ignored and on the criterion of significance used the apparent exception is not unexpected. Sex plays no important part in determining pH at these ages. This is not supported by work done elsewhere on older children in which mean pH for females was greater than that for males.

Clinically important significant differences were found between site means. Mean differences ranging from 0.42 ± 0.06 to 0.81 ± 0.06 pH units were found between corresponding flexor and extensor surfaces. The flexor surfaces consistently had the higher mean pH and this tendency was also observed in other pairs of adjacent sites. The reverse has been reported, by other workers, to be true for older children.

On average the dorsum of the hands, the elbow points and the upper arm extensor surfaces were the most acid areas examined with mean pH of 5.75 ± 0.04 pH units or less. On average the groins, scalp and forehead surfaces were the most alkaline areas examined with mean pH of 6.42 ± 0.04 pH units or more.

No comparable data exist for children of this age and the few comparisons possible suggest that the means in this series are higher than those reported for older children.

In view of differences from the results of others working with older children, the work of Behrendt and Green appears to be very relevant. The changes in pH associated with age, which they reported for three sites, may be true of other areas and it may well be that the pH of flexor surfaces decreases more rapidly and to a lower level with age than does that of extensor surfaces.

Since there is indirect evidence that children with seborrhoeic disease have a more alkaline skin surface reaction over the whole body

than other children it might be possible to detect susceptible children long before illness develops. It is therefore important to have on record the distribution of pH levels as presented here, but it is equally important that the associations of pH with age should be investigated more thoroughly.

Skin Sensitivity

The mechanism of housewives eczema of the hands could be explained by H. Sigel (*A.M.A. Arch. Dermatol.* 80:461, 1959) as a combination of thin epidermis and chronic or frequent exposure to mild primary irritants.

Forty-three patients, of whom thirteen were males; twelve, females with housewives' eczema of the hands, and eighteen, females with miscellaneous dermatoses, were studied with comparative threshold electrical and chemical stimulation. The group was studied (1) as a whole, (2) on the basis of sex, and (3) on comparison of subjects with housewives' eczema of the hands with females with other dermatoses.

The results indicated that high threshold voltage (TV) was associated with high resistance to threshold primary irritant and vice-versa. Males were found to have higher TV values on the average than females, but for a given TV value there was no difference in susceptibility to primary irritant between males and females. Patients with housewives' eczema of the hands were found less likely to have a high TV and also showed less resistance to the primary irritant than other women.

Stearate Granulomas

The experimental production of non-allergic granulomas in human skin with pure preparations of the soaps, sodium stearate and sodium palmitate, has been described by H. S. Hurley and W. B. Shelley (*J. Invest. Dermatol.* 33:203, 1959). These compounds showed marked superiority over a host of other compounds, including other pure preparations of related soaps and fatty acids, in the production of this tissue response.

As a result of *in vitro* studies, in which solubility and the effects of plasma at 38° C. upon these compounds were studied, it was concluded that the special granulomagenic capacity of sodium stearate and sodium palmitate resides in their ability to form colloidal systems composed of micellar particles. Fundamentally this change takes place at the interface between the foreign soap and the tissue fluid or intracellularly after phagocytosis of soap particles. Once ingested by the phagocytes, the soaps produce intracellular colloidal systems. Such phagocytes, filled with colloid, then have a high colloid osmotic pressure and water is drawn into the cell. This results in the large, pale, faintly-staining epithelioid cell of these granulomas. Sodium stearate and palmitate may be characterized as localized "colloid generators" in the production of these granulomas.

The length of life of these granulomas is represented by the period required for the ingestion and metabolism of the foreign material. In most cases it does not exceed five weeks for the amounts used in this study. However, in some cases it may extend as long as 8-9 weeks. It is felt that this latter variation represents a genetic difference in the functional capacity of the reticuloendothelial system of these individuals.

It was stressed that the stearate and palmitate granulomas are not allergic in nature and may be sharply contrasted with the allergic granulomas, such as the zirconium deodorant granuloma, on the basis of duration, concentration required to elicit the response, and incidence.

Antifungal Antibiotic

Amphotericin A and B, antifungal antibiotics derived from a new strain of Streptomycetes, have shown antifungal activity *in vitro* and *in vivo*.

Topical preparations of amphotericin A and amphotericin B were used by W. M. Fraser and J. M. Knox (*A.M.A. Arch. Dermatol.* 80: 436, 1959) singly and in combination, in the treatment of 154 cases of various superficial fungus infections.

Results indicate that the amphotericins are effective against cutaneous moniliasis but are relatively ineffective against the other superficial fungus infections of man.

Antifungal Preparation

Certain saturated and unsaturated fatty acids are reported to have antifungal activity. Of these, undecylenic acid and its zinc salt have been used most widely in this field. The effectiveness of undecylenic acid preparations is limited in those cases where increased penetration and keratolytic action are required. In an attempt to find a compound which meets these additional requirements, sulfur and pelargonic acid were combined. Sulfur has been extensively used as a "fungicidal" and keratolytic agent for many years, but its chemical behavior with unsaturated fatty acids prevents its combination with undecylenic acid. The saturated nine-carbon fatty acid, pelargonic acid, whose antifungal activity equals that of undecylenic acid, was combined with sulfur because reactivity is not a problem with this combination.

The sulfur (Thylox) was a fine-particle (1μ-3μ) highly reactive material obtained from coal-gas purification.

Two formulations were developed: One was a cream containing pelargonic acid 4 per cent, zinc pelargonate 10 per cent, and the fine-particle sulfur 2 per cent in a vanishing cream base, and the other, a powder containing pelargonic acid 2.5 per cent, zinc pelargonate 20 per cent, and zinc sulfide 3 per cent in a talc base.

These formulations were studied by E. S. Bereston (*A.M.A. Arch. Dermatol.* 80:482, 1959) for nearly two years in 281 patients with all types of superficial fungus infections. The laboratory work consisted of direct microscopic examinations in potassium hydroxide and cultures on Mycosal agar.

Patients were instructed to apply the cream to the affected areas morning and night. The powder was used in tinea pedis as adjunctive treatment with the cream. The Table presents the results of the study.

In tinea cruris, tinea pedis, and tinea corporis, treatment with this antimycotic cream and powder has produced satisfactory results. In Trichophyton rubrum infections, the improvement rate and relapse rate were higher than for infections due to other organisms. In tinea capitis due to Microsporum audouini, results have been unsatisfactory. In onychomycosis the results have also been unsatisfactory.

(*Continued from page 612*)

ready certain questions have been submitted to a panel of some 800 "scientists." Of course, no real scientist will give an opinion on something with which he is not thoroughly familiar, so the replies would seem to be heavily weighted by the ideas of crackpots who will not hesitate to voice an opinion on any subject whether they know anything about it or not. We have even seen the shocking device resorted to by the enforcement authorities of establishing zero tolerances, and then prescribing a method which could not possibly detect small quantities of these products in foods. It is the same as prescribing zero tolerances for lead in zinc oxide, for example, and then prescribing the USP method for determining how much lead was there, when 200 parts per million could be present and the test would still show zero. Just who is kidding whom? The ultimate result of this amendment could easily lead to a general decline in the standard of living of all of us, if it were strictly enforced. At the same time the public would be paying for destructive acts on the part of the government because, in the end, the futile enforcement efforts which will be made must be paid for by the public.

The same fanatical trend in thinking led the Administration to take the position that it had no authority to establish tolerances for coal-tar colors. I believe that this position is contrary to the original meaning of the law. Lawyers have a saying, "Bad cases make bad law," and the bad case which went to the Supreme Court definitely made bad law on this. The result is that the food, drug, and cosmetic industries are faced with the possibility of losing the colors which are vitally necessary for them to make products satisfactory to the public, even though the fact of public protection is not at all involved, since there has been no definite and final proof that any one at any time has ever been injured by coal-tar colors properly employed in foods, in drugs, or in cosmetics.

The net result of this has been the introduction and passage by the Senate of still another amendment which, if it is finally enacted, will be known as the Color Additives Amendment. Industry has perforce backed the passage of this amendment because without some change it will be faced with the loss of vital, necessary and completely harmless raw materials. No one, I think, likes the amendment. It contains many provisions difficult to understand and some that seem to be completely unenforceable and unrealistic. The Food Additives Amendment contained a provision providing that nothing which would cause cancer in man or animals could be licensed as a food additive. The proposed color additive amendment contains a provision along the same lines, although not in precisely the same language. After all, whether you die of cancer, diabetes, or just from eating green apples, aren't you just as dead? And the fact is that the 1938 Act, properly enforced, bars products which may

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cause cancer or any other disease.

Again we have have emotion rather than reason governing the enactment of an amendment, because literally no one, even the most fanatical expert, can say categorically whether any substance does or does not cause cancer in man. What might be true in animal experimentation cannot categorically be transferred to human beings, although some seem to believe so.

There is now pressure for the enactment of yet a further amendment covering cosmetics. It may very well in the end take the form of combination ingredient and finished product licensing. In the 21 years since the original law was enacted, practically no one has ever been hurt by a cosmetic, and there have in fact been only a little more than 200 cases against cosmetics under the 1938 Act for all reasons. Only a handful of cases were brought because of any harm to a consumer. All these cases incidentally, brought about immediate correction of the conditions complained of. However, fanatical opinion seems to be prevailing and I tremble to think what sort of a bill will be produced. It will, I am sure, contain many provisions, including another different cancer clause, destructive of industry and destructive of the interests of the public, and possibly destructive of the enforcement body. Those holding these opinions seem to believe that the Creator endowed them with a mission and capacity to protect everyone against all hazards of living. I venture to state that there is no such mission, and even if there were, these people have not been endowed with even the slightest capacity for carrying it out.

This article is not a plea against public protection. For more than 30 years I have preached the doctrine that the public deserves to be protected and should be protected. It is a plea against wrecking a law which has afforded that protection for more than 20 years and a plea not to destroy the effectiveness of that very good law.

Since the work of destroying it has already started, and seems to be progressing rapidly, what should those of us who are vitally concerned do about it? I believe that an informal, or even a formal, committee of people who are really experts on this law and in the protection of the affected industries, should be formed. This should really be a committee of experts. Those who are members should not necessarily be "big names" who will let someone else write the final recommendations. Those who appoint it should forget the silly notion that grew up during the two World Wars—that trade association personnel should not form a part of such committees. Trade association personnel generally have a broader view of their industries than those at the head of individual companies, and they also have a better understanding of what public protection and the safeguarding of their own industry entails. At the risk, and it is a risk, of

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skipping a number of people who should be represented on such a committee, I would suggest as a starter: Charles Wesley Dunn, who over a period of more than 40 years has specialized in this law and probably knows more about it than any other person in the United States. I would suggest Dr. J. O'Neill Closs and Dr. Karl Bambach of the Pharmaceutical Manufacturers Association. I would suggest Jim Hoge, well-known and able attorney whose work with the Proprietary Association over the years has been outstanding. Since government should and must be represented, I would suggest Jack Harvey, Deputy Commissioner of Food and Drugs and an able lawyer, and Billy Goodrich, counsel for the present Food and Drug Administration. There should also be a representative of the American Medical Association and probably others.

When you have such a committee, let it get together over the next year or two and, using the original 1938 Act as a basis, draft an entirely new Federal Food, Drug and Cosmetic Act, which I am sure will not contain many provisions and amendments enatced through emotion and which I am sure will protect everybody adequately, just as the 1938 Act over a period of years has done.

I am confident that there are enough sound thinkers in Congress to insure the passage of such a law and to them the public and industry will be eternally grateful.

ESSENTIAL OILS

(Continued from page 626)

an easy-going lot who will work only when in need of money. Things are different with the younger generation, who, attracted by the luxuries and the higher standard of living of the white man, are inclined to move into the towns, depriving the rural countryside of much needed agricultural labor.

Clove Leaf Oil

Aside from the spice (the dried clove buds) Madagascar also produces large quantities of clove leaf oil —roughly 1,500 to 1,800 long tons. Producing regions are the same as for the spice.

The distillation material consists of terminal branches and adhering leaves. (But only too often entire branches are hacked off the trees and in such a crude fashion that only tree stumps with some thick branches are left. Trees thus mutilated are doomed to die.) When properly exploited, one tree gives about 260 pounds of leaves per year, which on distillation yield up to 4½ pounds of oil per year.

There are approximately 700 clove leaf stills in the producing regions, about 500 of these in the region of Fenerive, and 200 in Mananara and on the island of Sainte Marie. They are utterly primitive, clumsy contraptions, made locally, often from old iron drums.

Because of the prevailing low prices for the oil, the entire production is now in the hands of the natives, the large distilleries formerly operated by white planters having been dismantled.

Depending upon the size of the still, distillation of one charge requires from 15 to 24 hours. The yield of oil averages 1.5 per cent.

The most expensive item in the production of clove leaf oil is firewood. An operator must frequently spend days cutting sufficient wood for the distillation of one charge of leaves. Since the forests in the clove producing regions are receding, it is becoming increasingly difficult to cut the wood and carry it down to the site of the still.

Owing to contamination with iron, the crude oil is almost black, and usually contains dirt and water.

The native producer delivers his output to a Chinese shop owner in the nearest village who in turn sells his accumulated lots to purchasing agents of the exporters in Tamatave. In former years the exporters filtered the oil and placed it in galvanized iron drums for shipment abroad. Because of the present low prices this is not always done nowadays and much of the oil reaches Europe or the United States in old gasoline drums, often containing water and impurities.

To meet the export specifications of the French Administration in Madagascar, the oil must contain at least 82 per cent of eugenol. Many lots have a higher content (up to 90 per cent), but unfortunately buyers abroad do not seem willing to pay a premium for such superior oils.

While some shippers in Madagascar treat clove leaf oil as casually as any other native produce or merchandise, there are, fortunately, a few conscientious exporters who make up bulkings according to specific gravity (1.04 at 15° C.), free the oil from water and dirt, and place it in well-cleaned gasoline drums freshly painted on the outside. These shippers should be encouraged by buyers abroad.

Oil of Ylang Ylang

The founder of the ylang ylang industry of Nossi Be was Father Clement Raimbault, a member of the Order of St. Esprit and a remarkable physician who specialized in the treatment of leprosy. Father Raimbault introduced the tree into Nossi Be and the adjoining areas of Madagascar about fifty years ago. In the course of time, production of ylang ylang oil became important here, particularly with the decline of the Manila industry after World War I. At the present time the Comoro Islands, where the industry got into full swing in the late 1930's, is the largest producer of the oil, with Nossi Be and nearby parts of Madagascar following. Estimated annual production totals are: in the Comoro Islands, 28,000 kg.; in Nossi Be and neighboring Madagascar, 15,000 kg.; and in Reunion Island, 1,000 kg.; making a total of 44,000 kg.

Within the Comoro Islands, production is distrib-

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uted thus: in the Island of Anjouan, 18,000 to 19,000 kg.; in Grande Comore Island, 7,500 to 8,000 kg.; and in the Island of Mayotte, 2,000 kg.

The best soil for ylang ylang is decomposed volcanic, which contains a large amount of mineral substances. The roots of the tree can easily penetrate this soil, to find moisture in the subsoil. Since strong winds may blow the flowers from the trees, plantings should be established in protected valleys or on gentle slopes. The plant seems to flourish best at low altitudes, near the sea. Rainfall should amount to 60 to 100 inches yearly.

Ylang ylang trees are first grown in nurseries, from seed. When ready for planting, the young trees are put out in squares of 5 by 5 meters, so that one hectare (2.471 acres) holds approximately 500 trees. A tree needs about four years to reach full production. After some 40 years it begins to lose its vitality. Old trees yield less oil than younger and more vigorous ones; the latter yield about 100 grams of oil. With age, the quality of the oil, too, declines: a far lower proportion of the "extra" oil is found in oil from older trees.

Apparently there are several hybrids of the tree, some producing few flowers, others blooming richly, but yielding an inferior quality of oil. Quite possibly these hybrids are related to the cananga plant. At any rate, they were brought into Nossi Be in the early 1920's, just when the groves of ylang ylang were being expanded. The seed for these hybrids came originally from a nearby Madagascar plantation. By now, the hybrids have multiplied so greatly that in certain plantations on Nossi Be they constitute more than half of the trees. This fact has undoubtedly affected the quality of the Nossi Be oil, since flowers from the hybrid trees do not yield the high ratio of "extra" oil that genuine ylang ylang does. It is regrettable that this was not recognized a long time ago, when the pure stock of the groves might have been preserved.

The quality of ylang ylang oil has suffered somewhat for another reason: in maturing, the color of the flowers changes from green to yellow. This is the proper time for harvesting (green flowers yield a poor oil), and distillers make an effort to have only the *yellow* flowers picked, although nowadays they are not often successful, due to the indolence and carelessness of labor. Years ago—before World War II—distillers could insist on this point, but today any producer who tried to limit himself to yellow blossoms would find himself without flowers at all, or with flowers too expensive for distillation. Producers, therefore, must work with whatever flowers the harvesters deliver, and this makes for an inferior grade of oil.

The ylang ylang bears flowers all year round in the Comoros and on Nossi Be. However, there are peak periods, which depend on locality and rainfall, and which may differ in various parts of the same island. The flowers yield their finest oil, and in greatest quantity, in the dry season. Incidentally, ylang

ylang, like jasmine, appears to be most fragrant at night and in the early morning. In fact, the essential oil seems to disappear from the blossom as the day advances. For this reason, it is advisable to pick the blossoms early in the morning.

The distillation of ylang ylang oil is a unique process; it amounts, in effect, to a fractionation. In other words, the oil is not, like other essential oils, distilled as a *complete* oil, but by *fractions*. The first fraction, called "extra," actually represents the best oil, with the finest odor; the second fraction is called the "first" oil; the third, the "second," and the fourth, the "third." There is also, somewhat ambiguously, a "complete" oil, a commercial product prepared after distillation by mixing all fractions in their proper ratio.

Of the various fractions, the "extra" has the highest specific gravity and the highest ester number; the "third" fraction the lowest. Specific gravity and ester number of the oil, that is, the fractions, decrease as distillation proceeds. For this reason more progressive distillers cut their fractions by specific gravity. The smaller operators—and particularly the natives—cut their oils by hours of distillation, so that the oil distilling over in the first hours constitutes the "extra," that following makes up the "first," and so on. Every operator has his own method of distilling and cutting fractions, but they must all meet government specifications.

Modern ylang ylang stills are generally equipped with both *indirect* and *direct* steam coils. In the earlier stages of distillation, indirect steam is used, that is, for the "extra," "first" and "second" fractions; for the "third fraction direct steam is employed. Smaller operators use open-fire stills heated with wood. More advanced producers generate their steam in boilers heated with fuel oil. The use of fuel oil appears to result in a smoother distillation, with better control of the volume of steam and a concomitant sharper cutting of fractions. Distillation of ylang ylang flowers requires cohobation of the distillation waters.

As we have said, there is a very wide variation in techniques of distillation and fractionation among producers. A fair sample might be this:

Quality	Hours of distillation	Approximate percentage of oil, calculated upon flower material
Extra	1st-4th	0.6 - 0.8
First	4th-5th	0.1 - 0.2
Second	5th-8th	0.1 - 0.2
Third	8th-20th	0.8 - 1.2
		Total about 2.0%

The total yield of oil from the blossoms approximates 2.0 per cent.

To obtain a high quality of ylang ylang oil, a number of rules must be observed:

(1) Only vigorous trees, not too old, and planted preferably in decomposed volcanic soil, should be

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used. Hybrids must be eliminated.

(2) Only mature, *yellow* flowers should be gathered, and these distilled immediately after harvest.

(3) Stills should be modern in design, and thoroughly steamed and cleaned out before use.

(4) Careful blending of lots, by both analysis and odor, should be practiced. This is the only way to guarantee uniform quality throughout the year.

(5) Oils should be aged for a few weeks, to eliminate any "still" odor. The odor of ylang ylang oil changes and improves remarkably with aging.

(6) Clean drums must be employed for shipment.

While there are no definite rules for distillation of ylang ylang oil in Nossi Be and the Comoros, the oil, that is, the fractions, must meet government specifications before an export permit is granted. Government standards are these:

Quality	Specific gravity at 20°	Ester No.
Extra	0.945 minimum	125 minimum
First	0.927-0.944	90 "
Second	0.917-0.926	58 "
Third	0.905-0.916	38 "
"Complete Oil"	0.915 minimum	47 "

Of course, these are minimum figures. Thus, if an exporter tried to declare as "second" an oil with a specific gravity of 0.930, which would save him some export taxes, the government laboratories would reject the lot, declaring it "first" quality.

All lots intended for export are examined at the government laboratories in Tananarive, Madagascar. The duties on lots accepted for export are 5 per cent ad valorem, plus 2 per cent special tax, and 0.5 per cent for government analysis, a total of about 7.5 per cent.

A number of significant developments have taken place in the ylang ylang oil industry since the end of World War II.

There has been a major increase in production in the Comoros, and a corresponding decline in Nossi Be and Madagascar.

The Nossi Be oil has suffered somewhat in quality, largely because the trees on that island, as well as on adjacent areas of Madagascar, are now over age. Fertilizers are not used, nor has any basic research on ylang ylang—so important to the island—ever been carried out. Moreover, flowers are no longer carefully picked. By contrast, in the Comoros the trees are young and vigorous, and give a high yield of oil with a high ratio of "extra" quality. (The hurricane of December, 1950, destroyed practically all of the older trees in the Comoros, and extensive planting of new trees took place.) Also, only matured flowers are picked. In Anjouan, the heaviest producing island in the Comoros, plantings lie on volcanic soil highly beneficial to the tree.

Still and boiler capacities have been greatly increased in the Comoros, particularly among the bigger producers; even the smaller operators now use

efficient direct-fire stills of copper, instead of the crude apparatus formerly employed.

There appears to be a superabundance of "second" quality oil in the Comoros, while in Nossi Be and adjacent Madagascar the "third" quality is over-produced. There is a steady market for the "extra" oil, whether from the Comoros or from Nossi Be; leading perfumers throughout the world cannot do without it, even at very high prices.

Other Essential Oils

Aside from ylang ylang, the Comoro islands (Anjouan, Grande Comore, Mayotte, and Moheli) produce limited quantities of oils of lemongrass, basil, and palmarosa, the latter of very fine quality with a pleasant rosy odor.

Palmarosa is planted—on the island of Anjouan—in October, the first harvest taking place the following May. Production of this oil now averages about 1,000 kilograms per year. The oil goes mostly to France and England where it is highly appreciated by experts.

Experiments to produce geranium oil are under way on the islands of Grande Comore and Mayotte.

An interesting, and quite successful, development is the cultivation of jasmine. The plants were introduced from the Grasse region in Southern France and established in Anjouan, where they thrive in the rich soil and warm climate. The flowers are extracted with carefully rectified petroleum ether, according to the method employed in Grasse and in modern apparatus constructed in France. In 1957, production of concrete of jasmine amounted to about 100 pounds, with a substantial increase planned for the years to come.

The absolute prepared from the concrete is of excellent quality and highly appreciated by connoisseurs in France. In 1957, production of jasmin concrete was in the hands of a large ylang ylang distiller in Anjouan; another important ylang ylang producer on the island was then experimenting along the same lines, expecting to plant a substantial acreage of jasmine. Because of the favorable soil, climatic, and labor conditions prevailing on the island, production of concrete of jasmin in the foreseeable future may well assume important proportions. The experience of the two French operators now producing the concrete assures the success of this interesting venture on Anjouan.

MEAD JOHNSON'S PROGRAM

(*Continued from page 631*)

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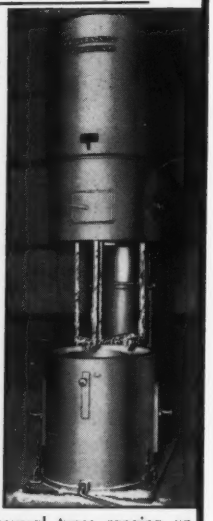

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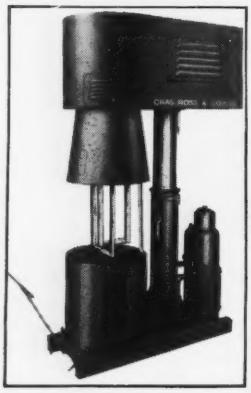

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containers, for instance, a pair of babies' faces (boy and girl) appears in the area reserved for functional symbolism, always the upper left segment of the main panel. On a blood administration set, a symbol consisting of the principal parts of the set itself is used. On certain therapeutic products, Lofenalac for example, a symbol of a laboratory flask and the stylized figures of a man and a woman are employed to suggest the technical excellence of the products.

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KERATIN SUBSTANTIVITY

(Continued from page 619)

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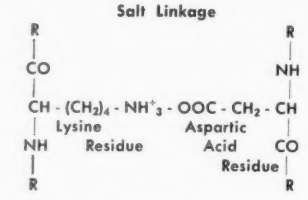
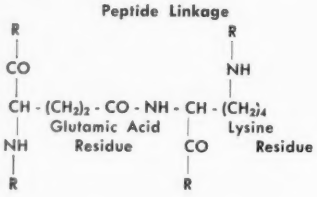
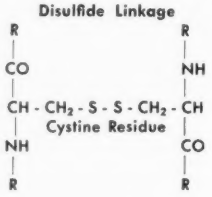


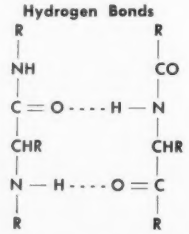
Peptide Linkage



Disulfide Linkage



Hydrogen Bonds



cationic, can and generally do react with keratin, presumably at the salt linkages. In reference to these and other strictly chemical types of reactions, keratin acts

as a definite chemical entity and will react with materials in predictable mole-for-mole ratios. It will have a definite "binding capacity" for such materials, probably accounting for the so-called "capacitance" effect described in some dermatologic tests which had been set up to measure penetration through the skin.

These chemical effects are relatively easy to accpet. Substantivity that is primarily physical is more difficult to explain, but it occurs nevertheless. Highly nonpolar materials such as mineral oil, for example, certainly "stick" to keratin far beyond reasonable expectations. A little mineral oil in a shampoo will give the hair distinct extra sheen, even though the only other component of the shampoo is a surfactant which is an excellent emulsifier for oils. Superfatting of soaps and other cosmetics for the skin and hair is a common practice, and makes use of this effect.

At the recent seminar on percutaneous absorption, some curious anomalies were noted, many of them perhaps explainable in terms of substantivity of either the active ingredient in question, or of the base vehicle used to carry it on or into the skin. A few examples follow:

(1) All hydrocortisone ointments are obviously not equal in effect. It was noted that 1 per cent ointments seemed to do as well as 2.5 per cent in some respects. The composition of the respective ointments was not brought out, but were not likely to be identical. Work with vitamins done by Flesch at the University of Pennsylvania has shown the enormous influence of the base vehicle in this area. A lanolin based W/O cream will release vitamins to the skin much more effectively than petrolatum will.[1]

(2) On the other hand, mineral oil was reported by Cotty to be a far more effective medium than animal oils for getting 10 per cent methyl salicylate into the system by means of body rubs. Acetylated lanolin fractions were somewhere in between the two.[2]

(3) A hydrocarbon gel was reported superior to vegetable oils in getting vitamin A from the skin surface into the liver.[3]

(4) In the presence of certain anionic surfactants, Vinson reported that allergens such as nickel sulfate would cause allergic response when only 20 per cent of the "normal" amount was used. Surface activity alone seems to be ruled out as an explanation, since other equally good reducers of surface tension did not produce this effort. Is it possible that the particular surfactants reported *react* with the skin, and somehow inactivate certain sites which normally protect the body by complexing the allergens?[4]

Each of the above and many other examples we commonly meet in our work may involve the phenomenon of substantivity. So also may the effect which was compared to electrical capacitance by some speakers at the recent seminar on percutaneous absorption.

It is not claimed that merely giving a broad name to a whole category of diverse effects can explain

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them. It *is* hoped, however, to put them into a proper perspective for the cosmetic chemist, and to hold out to him an area in which he can legitimately work and achieve significant contributions.

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6. Rothman, S. 1954. Physiology and Biochemistry of the Skin. University of Chicago Press. Chicago, Ill.
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AEROSOL INDUSTRY CLINIC

(*Continued from page 615*)

tested with the product, and valve components should be fabricated with corrosion possibilities in mind. Corrosion inhibitors are sometimes useful.

If a choice is to be made between pressure filling and cold filling, according to the panelists, formulations must be made with with these methods in mind. Cold filling is faster; pressure filling leaves air in the head space over the product. The action of a product at low temperatures will determine its adapatability for cold filling, where viscosity of the product is increased and precipitation may occur. In the latter instance, when the precipitate redissolves at higher temperatures without harm, the cold mixture must be kept in agitation to maintain uniform filling.

Emulsions for aerosols can be oil-in-water or water-in-oil, and the desired phase relationship is readily brought about by selection of the appropriate emulsifying agent. Compressed gases, not present as liquids, do not deliver a foaming product. Oil-in-water emulsions containing propellant as a component of the internal phase require less of the propellant, but the character of the resulting foam will be dependant upon the structure of the valve. Water-in-oil emulsions are less corrosive and produce finer spray particles.

Powder aerosols may be packaged in cans or in glass or plastic bottles; major problems arise from valve clogging, which is related not only to orifice size, but also to the valve mechanism. The formulation, when developed, should be stored in a transparent container to permit visual inspection. This will show whether or not the dip tube is becoming clogged and will help in deciding if a ball is needed to break up agglomerates. Delivery of the powder is often made easier by the use of lubricants; if the particle size of the powder is too small, the powder may not adhere properly to the skin. It is sometimes useful, in filling, to add the powder in a capsule to the container, the capsule dissolving away in the propellant which is added later.

The production panel consisted of J. C. Hart of J. C. Stalfort & Sons, Inc., A. Iannacone of Fluid Chemical Company, Inc., and A. Osman of Thomasson of Pennsylvania, Inc., with R. T. Ferry of Kartridg-Pak Machine Company as moderator. Salient points covered were the proper scheduling of production to reduce the amount of flushing and cleaning required between runs of different products, and the installation of duplicates of vital parts to reduce down-time caused by mechanical failure.

Y. V. G. PROCESS

(*Continued from page 613*)

used in fully extended position; consequently, the shape, either with the Y.V.G. plastic molds or regularly molded lipsticks, must maintain a definite diameter-to-length relationship that will minimize breaking of the stick during use.

Finally, as a private-label production service, the Y.V.G. process includes a series of color base lipstick masses, formulated so that color in the stick and on the skin are very similar, as well as close to stain color. These masses may be blended in various proportions to produce a wide variety of lipstick shades, which eliminates the need for grinding and mixing equipment where the molding operation is to be maintained on a relatively small scale. These masses might also be used for retail lipstick blending by demonstrators. Because of restrictions imposed on lipstick colors of foreign origin, these color masses are not now available in the United States.

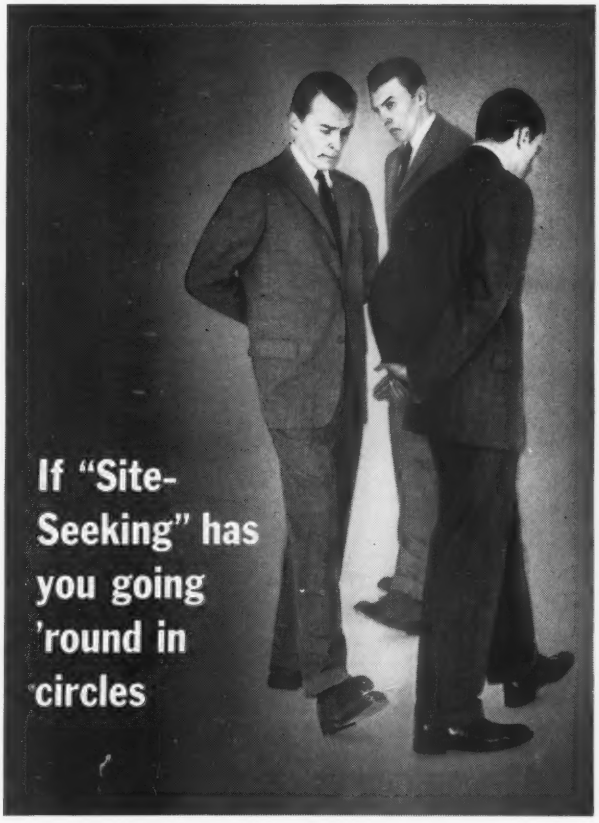
In summary, the plastic molds offer a method that is claimed to be faster and should be cleaner than current methods of molding lipsticks and inserting them into cases. Lipsticks can thus be both molded and packaged without the hand contact now usual, can be inspected for obvious imperfections before packaging, and require no flaming treatment to restore mold luster. With only the additional material cost for a small and inexpensive plastic collar to fit around the lower end of the lipstick, conventional lipstick cases would require little modification for use with these molded sticks.

PENICILLIN REJUVENATED

(*Continued from page 623*)

gators did not have, was able to develop flexible synthetic procedures. With the financial and technical assistance of Bristol Laboratories, he and his students developed selective reactions that operated under simulated physiological conditions of aqueous solutions at room temperature and near neutrality. The unique carbodiamide reagent, RN:C:NR, has been developed to close the *beta*-lactam ring.

As far back as 1950, Dr. Sheehan and his co-workers prepared totally synthetic 5-phenyl penicillin,



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which is devoid of antibacterial activity. Continued work led to penicillins with various side chains, but without nuclear substituents that destroyed activity. Phenoxymethyl penicillin, penicillin V, was totally synthesized in 1957 and was proved identical with the fermentation product, but the chemical process was commercially impractical. Later, 6-aminopenicillanic acid made by total synthesis and by fermentation were proved identical. It has now become possible to use the less costly fermentation starting material to produce an almost infinite range of side-chain substituted penicillins that could not be obtained by known fermentation and precursor methods.

As matters now stand, the Bristol Syncillin is a side-chain modified penicillin with a number of definite advantages. Nevertheless, the new compound is even more striking in promise for the future. One question, for instance, has been answered by Sheehan's work—is sensitivity of the patient related to the penicillin molecule itself, or to the infinitesimal quantities of fermentation products that may still be present even in a highly purified natural penicillin? A wholly synthetic penicillin, identical with a natural product, produced allergic and sensitizing reactions, so that these must be related to the molecule itself, not to impurities of natural origin. Syncillin, differing from penicillin V only in the presence of an additional methyl group, is even more stable in the presence of acids, so that it can be absorbed from the digestive tract without major breakdown, and can produce higher and more effective blood levels. The new molecule is more resistant to the degradative action of penicillinase, so that at least some of the bacterial strains that are no longer affected by ordinary types of penicillin succumb to this antibiotic. A further potentially useful increment of information relates to the isomeric forms of *alpha* phenoxypropionic acid. The *dextro* and *levo* derivatives differ in their antibacterial activity, but, surprisingly, the total activity of a mixture of these two forms is not an arithmetic average of the two activities, but is greater than that of either.

Of the many side-chain variations produced up to now, about 10 per cent show sufficient promise to deserve further clinical study. Little has yet been revealed about these compounds, but they are said to include penicillins that are more stable in the presence of acids and penicillinase and are absorbed more effectively, and penicillins that hint at a broader antimicrobial spectrum and reduced sensitizing potential. A powerful research tool, modification of the penicillin nucleus, instead of just the side chain, is now being brought to bear. It will in time tell us if the structure is highly specific, or whether it can be changed and still retain important, and possibly improved activity. Synthesis, alone and in combination with fermentation starting materials, promises penicillin renaissance and rejuvenation. •

(*Continued from page 645*)

study, not only of the claims but of the disclosure of the patent, the prior art and indeed the entire proceedings before the U. S. Patent Office prior to the issuance of the patent.

The main reason for such a study is that the courts do not stop at trying to find that there has been *literal* infringement of patents. They also give to the patentee the benefit of what is referred to as equivalents.

In short, an equivalent is something which is known to do substantially the same thing in substantially the same way. This is a neat little definition but it does not help too much in any given case because the holder of the patent naturally takes the position that what the alleged infringer is doing is an equivalent, whereas, the alleged infringer takes the opposite opinion.

Perhaps just two brief examples will serve to show that what is or is not an equivalent is not so easy to determine. In spite of the fact that any high school student of chemistry knows very well that manganese is not an alkaline earth metal, the U. S. Supreme Court itself has ruled in a patent case that maganese silicate is covered by certain claims which recited "alkaline earth metal silicates." Certainly, anyone looking at the claims and being asked whether manganese would come under the claims would have been pardoned had he given a negative answer. However, the facts in that particular case showed that for the purposes there involved, namely, the art of fluxing, the workers in the art considered manganese and magnesium as equivalents.

More or less along the same lines, it is believed beyond question that any elementary organic chemistry student, upon being given the structural formula of Butyl Cellosolve, would immediately know that the material in question is both an alcohol and an ether. Yet, a U. S. Circuit Court of Appeals has ruled that Butal Cellosolve in a particular case was not an alcohol. The court there had before it a very narrow patent from which it concluded that the term alcohol had an extremely narrow meaning and did not reach Butal Cellosolve.

The moral to keep in mind is that no evaluation of the claim coverage of any patent is complete unless one takes into consideration the possible equivalents, for the purposes of the patent, of all of the terms employed in the claims. Mere consideration of the literal meaning of the words in the claims can lead to trouble in the patent field.

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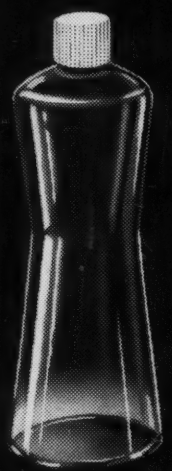

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(*Continued from page 700*)

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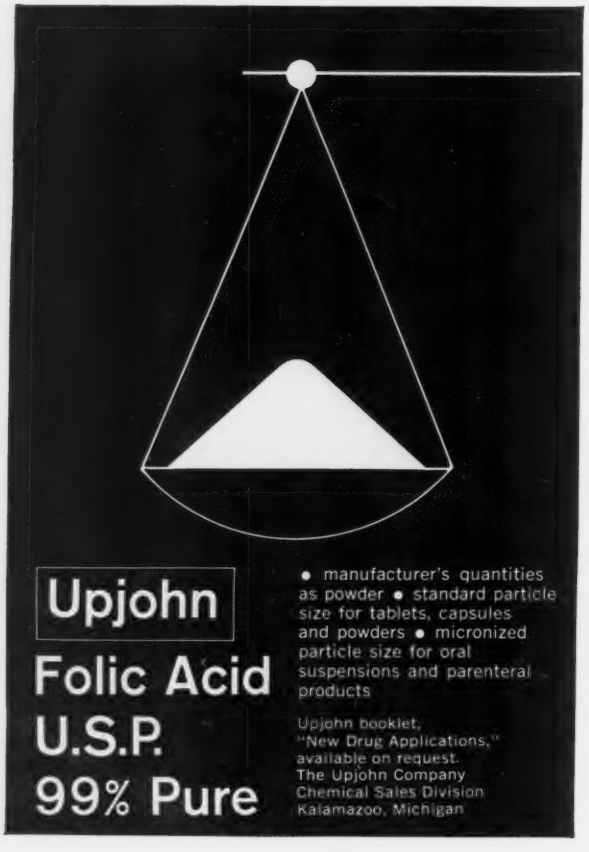
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Upjohn booklet, "New Drug Applications," available on request.
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(*Continued from page 701*)

2,902,497—G. D. Searle—Alkyl Hydroxyestran Ones.
2,902,498—Olin Mathieson—Androstadienes.
2,902,509—Soc. Ital. Prod. Schering—Phenyl Ethylmalonate Esters.
2,903,394—T. & H. Smith, Ltd. (Eng.)—Quat. Halides of Tropane Alkaloids.
2,903,395—Chas. Pfizer—Aqueous Calcium Dioxytetracycline Antibiotic Composition.
2,903,396—Ciba—Compositions for Treating Parkinsonism.
2,903,397—Olin Mathieson—Laxative Tablet Containing Di-octyl Sodium Sulfosuccinate.
2,903,443—Ciba—Amino-Ketoses.
2,903,444—Schenley Industries—Acyl Derivatives of Dihydroxy-Isophthalic Acid.
2,903,447—Les Labs. Fr. de Chimiotherapie—Diphenyl Piperazine Bipenicillinate G.
2,903,448—Merck—Keto-Allosteroids.
2,903,453—Lakeside Labs.—Quat. Ammonium Salts of Amino-alcohol Esters of N-Alkylpiperidine Carboxylic Acids.
2,903,454—Schering (Germany)—4-Aminochromanes.
2,903,455—Wisconsin A.R.F.—Furfuryl Aminopurine.
2,903,457—Upjohn—Cycloheximide Isomer.
2,903,459—Eli Lilly—Pyrrolidino Butanes.
2,904,462—M. E. Moreland et al.—Bacteriostat-Aluminum Chlorhydroxy Complex.
2,904,468—Carlen Corp.—Skin Disinfectant.
2,904,471—Merck—Stabilized ACTH Preparations.
2,904,545—T. Reichstein et als.—21-Diazo Pregnenes.
2,904,546—Chas. Pfizer—Keto Oxido Pregnenes.
2,904,547—Ciba—Magnesium Salt of Formosulfathiazole.
2,904,548—Geschickter Fund—N-Substituted Azabicyclo octane Diones.
2,904,549—Sandoz—Pyrazolones.
2,904,551—Merck—Pyridines.
2,904,550—Eli Lilly—Phenylpiperidines.
2,904,560-1—G. D. Searle—Acylthio Pregnene Diones.
2,904,562—Akt. Leo (Sweden)—Testosterone Esters.
2,904,564—Merck — Tribromo Pregnane Diol Trione Acetate.
2,904,590—Boots Pure Drug Co. (England)—Acetanilides.
2,905,049—Hans Laube—Motion Pictures with Synchronized Odor Emission.
2,905,662—Am. Cyanmid — Tetracycline-Urea Compound.
2,905,668—Soc. Usines Chim. Rhone-Poulenc—Phenthiazines.
2,905,672—Sterling Drug.—Pyridazine Ethers.
2,905,675—Upjohn—Androstene Amines.
2,905,676—G. D. Searle—Alkyl Hydroxy Estren One.
2,905,678—Merck—Hydroxy Pregnenes.
2,905,693—Geigy Chem. Corp.—Diphenyl Dioxo Butyl Carboxymethyl Pyrazolidine.
2,905,694—Chas. Pfizer—Esters of Diaryl Hydroxy Substituted Pyrazoline Ones. •

COMING EVENTS . . . . .

NOVEMBER

16-18 **Packaging Institute,** annual national packaging forum, Hotel Statler, N. Y. C. (Charles A. Feld, P.I., 342 Madison Ave., N. Y. C. 17)

16-20 **Fifth International Automation Congress and Exposition,** New York Trade Show Bldg., New York City.

17-20 **Packaging Machinery Manufacturers Institute Show,** New York Coliseum, N. Y. C. (Albert R. Stevens, Elgin Mfg. Co., Inc., Elgin, Ill.)

24 **Manufacturing Chemists' Assn.,** Statler Hilton Hotel, New York City (M. F. Crass, M.C.A., 1825 Connecticut Ave., N.W., Washington 9, D. C.)

30 **Exposition of the Chemical Industries,** New York Coliseum (E. K. Stevens, International Exposition Co., 480 Lexington Ave., N.Y.C. 17)

DECEMBER

1 **Toilet Goods Assn.,** scientific section, winter meeting, Waldorf-Astoria Hotel, N. Y. C. (Kathryn Fitzpatrick, Americas Bldg., Rockefeller Center, N. Y. C. 20)

2 **Synthetic Organic Chemical Manufacturers Assn.,** annual meeting and dinner, Hotel Roosevelt, New York City (S. Stewart Graff, Sec., S.O.C.M.A., 41 East 42nd St., N. Y. C. 17).

2 **Society of Cosmetic Chemists,** annual meeting, reception and dinner dance, Hotel Commodore, New York City (Walter Wynne, S.C.C., 2 E. 63rd St. N. Y. C. 21)

5 **Cosmetic Industry Buyers & Suppliers Assn.,** annual Christmas party, Waldorf-Astoria Hotel, N. Y. C. (Howard T. Kaneff, Ar-kay Printing Co., 200 Hudson St., N. Y. C. 13)

7-9 **Pharmaceutical Manufacturers Assn.,** mid-year and eastern regional meeting, Waldorf-Astoria Hotel, N. Y. C. (Dr. J. O'Neill Closs, P.M.A., 1411 K Street, N.W., Washington 5, D.C.)

7-9 **Chemical Specialties Manufacturers Assn.,** annual meeting and aerosol package contest, Mayflower Hotel, Washington, D.C. (C.S.M.A., 50 E. 41st St., N.Y.C. 17)

7-10 **American Medical Assn.,** clinical meeting, Dallas Auditorium, Dallas, Texas

9 **The Proprietary Assn.,** Research and Scientific Development meeting, Hotel Roosevelt, New York City (Dr. Howard A. Prentice, 810 18th St., N.W., Washington 6, D.C.)

1960

JANUARY

6 **Society of Cosmetic Chemists,** New York Chapter, monthly meeting, Hotel New Yorker, N. Y. C. (Dr. Saul Bell, S.C.C., 2 East 63rd St., N. Y. C.)

9 **Northwest Society for Clinical Research,** Seattle, Washington (Dr. John R. Hogness, 721 Minor Ave., Seattle 4, Wash.)

11-13 **American Academy of Allergy,** Hollywood Beach Hotel, Hollywood Fla. (James O. Kelley, 756 N. Milwaukee St., Milwaukee 2, Wisc.)

FEBRUARY

2-4 **Society of the Plastics Industry,** Reinforced Plastics Division conference, Edgewater Beach Hotel, Chicago, Ill. (S.P.I., 250 Park Ave., N. Y. C. 17)

(Continued on page 704)

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3 **Society of Cosmetic Chemists,** New York Chapter, monthly meeting, Hotel New Yorker, N. Y. C. (See above.)

FEBRUARY

3-5 **Pharmaceutical Manufacturers Assn.,** Legislative Section, Boca Raton, Fla. (Dr. Karl Bambach, P.M.A., 1411 K Street, N.W., Washington 5, D.C.)

8-10 **Pharmaceutical Manufacturers Assn.,** central regional meeting, Edgewater Beach Hotel, Chicago, Ill. (Dr. J. O'Neill Closs, 1411 K Street, N.W., Washington 5, D.C.)

15-16 **Pharmaceutical Manufacturers Assn.,** western regional meeting, Ambassador Hotel, Los Angeles, Calif. (Dr. J. O'Neill Closs—see above.)

25-27 **Symposium on Fundamental Cancer Research,** Univ. of Texas, Houston, Texas (Univ. of Texas, M.D. Anderson Hospital and Tumor Institute, Houston 5, Texas)

28 **American College of Allergists** (through March 5) Americana Hotel, Bal Harbour, Miami Beach, Fla. (Eloi Bauers, 2160 Rand Tower, Minneapolis 2, Minn.)

MARCH

2 **Society of Cosmetic Chemists,** New York Chapter, monthly meeting, Hotel New Yorker, N. Y. C. (Dr. Saul Bell, S.C.C., 2 E. 63rd St., N. Y. C.)

2-4 **Pharmaceutical Manufacturers Assn.,** Medical Section, Hollywood Beach Hotel, Hollywood Fla. (Dr. Karl Bambach—see above.)

3 **Drug, Chemical and Allied Trades Association, New York Board of Trade, Inc.,** annual dinner (Helen L. Booth, D.C.A.T., One Liberty St., N. Y. C. 5)

13-18 **National Health Council,** national health forum, Miami, Fla. (Philip E. Ryan, 1790 Broadway, N.Y.C. 19)

15-16 **American Broncho-Esaphogological Assn.,** Deauville Hotel, Miami Beach, Fla. (Dr. F. Johnson Putney, 1712 Locust St., Philadelphia 3, Penna.)

15-17 **American Laryngological, Rhinological and Otological Society,** Deauville Hotel, Miami Beach, Fla. (Dr. C. Stewart Nash, 708 Medical Arts Building, Rochester 7, N.Y.)

18-19 **American Laryngological Assn.,** Deauville Hotel, Miami Beach, Fla. (Dr. Lyman Richards, Massachusetts Institute of Technology, Cambridge 39, Mass.)

APRIL

1-2 **American Gastroenteral Assn.,** Roosevelt Hotel, New Orleans, La. (Dr. Wade Volwiler, Dept. of Medicine, University of Washington, Seattle, Wash.)

1-3 **American Society of Internal Medicine,** Mark Hopkins Hotel, San Francisco, Calif. (Robert L. Richards, 350 Post St., San Francisco 8, Calif.)

2-6 **American College of Obstetricians and Gynecologists,** Netherland Hilton Hotel, Cincinnati, Ohio (Donald F. Richardson, P. O. Box 749, Chicago 90, Ill.)

4-7 **American Management Assn.,** national packaging exposition, Convention Hall, Atlantic City, N.J. (Packaging Exposition, Clapp & Poliak, Inc., 341 Madison Ave., N.Y.C. 17)

5-14 **American Chemical Society,** spring national meeting, Cleveland, Ohio (A. T. Winstead, A.C.S., National Meetings Dept., 1155 Sixteenth St., N.W., Washington 6, D. C.)

8-12 **American Dermatological Assn.,** Boca Raton Hotel, Boca Raton, Fla. (Dr. Wiley M. Sams, 308 Ingraham Bldg., Miami 32, Fla.)

(Continued on page 705)

11-15 **American Assn. of Immunologists,** Chicago, Ill. (Dr. Calderon Howe, Columbia University College of Physicians and Surgeons, N.Y.C. 22)

11-16 **American Society of Biological Chemists,** Chicago, Ill. (Dr. Frank W. Putnam, Dept. of Biochemistry, Univ. of Fla., Gainesville, Fla.)

20 **Society of Cosmetic Chemists,** New York Chapter, monthly meeting—ladies' night, Hotel New Yorker, N. Y. C. (Dr. Saul Bell, S.C.C., 2 East 63rd St., N. Y. C.)

28-30 **American Assn. of Pathologists and Bacteriologists,** Hotel Peabody, Memphis, Tenn. (Dr. Russell L. Holman, Dept. of Pathology, L.S.U. School of Medicine, New Orleans, La.)

MAY

8-11 **Proprietary Association,** annual meeting, The Greenbrier, White Sulphur Springs, W. Va. (Dr. Howard A. Prentice, 810 18th St., N.W., Washington 6, D.C.

11 **Toilet Goods Assn.,** Scientific Section, Waldorf-Astoria Hotel, N.Y.C. (Kathryn Fitzpatrick, Americas Bldg., Rockefeller Center, N.Y.C. 20)

11-13 **Synthetic Organic Chemical Manufacturers Assn.,** annual spring outing, Shawnee-on-Delaware, Penna. (S. Stewart Graff, S.O.C.M.A., 41 East 41st St., N. Y. C. 17)

16-18 **Chemical Specialties Manufacturers Assn.,** mid-year meeting, Drake Hotel, Chicago, Ill. (C.S.M.A., 50 E. 41st St., N.Y.C 17)

JUNE

12-15 **Extension Services in Pharmacy,** annual national industrial pharmaceutical research conference (stabilization and stability testing of pharmaceuticals), King's Gateway. Land O' Lakes, Wisc. (Richard S. Strommen, E.S.P., Univ. of Wisconsin, Madison, Wisc.)

27-30 **Toilet Goods Assn.,** annual convention, Poland Spring, Maine, (Kathryn Fitzpatrick, Americas Bldg., Rockefeller Center, N.Y.C. 20)

JULY

19-21 **Western Packaging & Materials Handling Exposition,** Pan Pacific Auditorium, Los Angeles, Calif. (Western Packaging Exposition, Clapp & Poliak, Inc., 341 Madison Ave., N. Y. C. 17)

AUGUST

15-19 **American Veterinary Medical Assn.,** national meeting, Denver, Colorado (Brian M. Forster, A.V.M.A., 600 South Michigan Ave., Chicago 5, Ill.)

SEPTEMBER

7 **Society of Cosmetic Chemists,** New York Chapter, monthly meeting, Hotel New Yorker, N. Y. C. (Dr. Saul Bell, S.C.C., 2 East 63rd St., N. Y. C.)

11-16 **Americal Chemical Society,** fall national meeting, New York City (A. T. Winstead, A.C.S., National Meeting Dept., 1155 Sixteenth St., N.W., Washington 6, D.C.)

15-18 **Drug, Chemical and Allied Trades Assn.,** annual meeting, Sagamore Hotel, Bolton Landing, Lake George, N. Y. (Helen L. Booth, D.C.A.T., One Liberty Street, N. Y. C. 5)

OCTOBER

5 **Society of Cosmetic Chemists,** New York Chapter, monthly meeting, Hotel New Yorker, N. Y. C. (Dr. Saul Bell, see above.) ●

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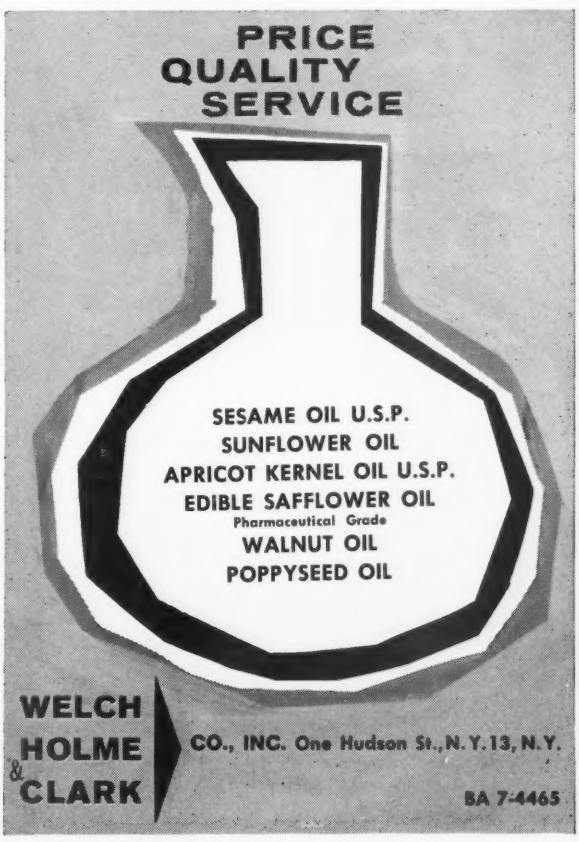

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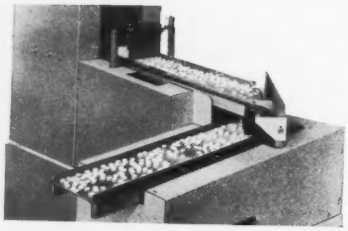

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(Continued from page 674)

Skin Packaging

Skin Packaging Today and Tomorrow, an adaptation from a paper presented before the Society of Plastics Engineers, Inc., by H. L. Burpo, assistant to the sales manager, Union Carbide Plastics Company, has been published by that Division and Union Carbide Plastics Development Company, both divisions of Union Carbide Corporation. In eight pages, it describes skin packaging, one example of thermoformed plastic packaging, giving fields of application, the procedure, physical properties, the film's vacuum-forming characteristics, and its large possibilities for other applications.

The Union Carbide Corporation has recently acquired a patent covering its process for skin packaging (U.S. Patent No. 2,855,735), and has already begun a program to extend its process into new fields of application. It is making rights to use its patented process available to industry through licensing agreements. Companies desiring to use the process can obtain appropriate licenses, either through licensed manufacturers of the prepared backing, or from Union Carbide, according to an announcement by R. E. Cornwell, president of the Union Carbide Development Company.

The pamphlet is available from Union Carbide Corporation, 30 East 42nd Street, New York 17, N. Y.

Equipment Testers

Custom Scientific Instruments, Inc., Kearny, N. J., has released its new catalog No. 59A, which describes and illustrates 73 testers of equipment manufactured as standard products. In its 16 pages, these units are grouped under the headings: abrasion testers; biological and scientific equipment; flammability—ignition testers; production, control, and research equipment; thermal conductivity—dielectric units; and thickness, compression, and recovery gages. The catalog also indicates that Custom Scientific Instruments is able to build to order testers or equipment of all types for individual needs.

Process Industries Service and Products

The General American Transportation Corporation, 135 South LaSalle Street, Chicago 90, Illinois, has published its 1960 General Catalog, which describes the firm's services and products for the process industries. The 20 pages include the following subjects, with illustrations: GATX tank cars; GACX airslide cars; GACX dry-flo cars; custom fabrication; field erection; tank storage terminals; Wiggins gasholders; mixing devices, Louisville dryers; Kanigen nickel alloy coating; plastics molding; and research and development.

Laboratory and Pilot Plant Ovens

The Despatch Oven Company, 619 S.E. 8th Street,

(Continued on page 708)

Reader's Questions . . .

Burow's Solution: *Will you please tell me how I may formulate a powder mixture of aluminum sulfate, calcium acetate, and boric acid so that one teaspoonful in one pint of water will give a one to twenty Burow's solution in a saturated solution of boric acid.* AUSTIN

First off, a saturated solution of boric acid contains about 5 per cent of the acid. In one pint, this will correspond to 22.5 grams of boric acid which you will never get into a 5 cc. teaspoon. The rest is a stoichiometric problem that can be readily solved (after the first three answers are discarded because of stupid errors in arithmetic). Burow's solution is aluminum acetate solution U.S.P., containing from 4.8 to 5.8 grams of aluminum acetate in each 100 ml. and up to 0.6 per cent of boric acid to stabilize the solution against precipitation. One pint of a one to twenty solution would then contain between 1.08 and 1.31 (1.2 average) grams of aluminum acetate. Since 666.4 grams of U.S.P. aluminum sulfate with 18 molecules of water of crystallization will react with 528.4 grams of calcium acetate (one molecule of water of crystallization) to produce 408 grams of aluminum acetate, 1.2 grams of aluminum acetate can be made from 2.0 grams of aluminum sulfate and 1.5 grams of calcium acetate. The mixture of these two chemicals, plus 2.7 grams of boric acid to make the 0.6 per cent solution, will add up to 6.2 grams, which can probably be adjusted to fill a teaspoon by coarse or fine grinding.

Unless carefully worked out experimentally, this powder mixture could really cause trouble. By trying to dissolve all the ingredients at one time in the same solution, the boric acid may precipitate an insoluble aluminum complex, or the by-product calcium sulfate may coat the granules and prevent them from dissolving. Even if a good solution is obtained, the calcium sulfate product of the reaction will give an unsightly precipitate. Finally, the powder will contain aluminum sulfate and calcium acetate, along with water of crystallization. These should eventually react so as to produce enough plaster of Paris to make the mass set to a solid rock.

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(*Continued from page 706*)

Minneapolis 14, Minnesota, has published a reference catalog providing basic information on laboratory ovens, pilot plant ovens, and small-batch production ovens. Reference tabs make the catalog easy to use, and complete information on ovens for each application is provided in the illustrated bulletins in each section. The sections include: drawer-type ovens, forced convection; walk-in ovens—forced convection; cabinet ovens—forced convection; gravity ovens; burn-off ovens; furnaces; sterilizers; and controls, fans, heaters, and the like.

ADVANCING THERAPY

(*Continued from page 669*)

son showed DMCT to be "a more effective antibiotic."

Harvard University's Dr. Maxwell Finland and Dr. Hans A. Hirsch, and Dr. Calvin M. Kunin of the University of Virginia, outlined studies comparing the antibacterial activity of DMCT in the blood with that of tetracycline following repeated oral doses of both compounds in healthy volunteers. The effectiveness of DMCT against test organisms, they said, was generally superior, striking, and significant.

They stated that DMCT remains in the blood much longer than tetracycline and 48 to 72 hours longer than either chlortetracycline or oxytetracycline. They attributed the new drug's long life to the fact that it is excreted only 43 per cent as fast as tetracycline.

The clinical implication of these findings, the Harvard researchers stated, is that less of the new drug is probably required to obtain an antibacterial effect equal to that given by the older tetracycline drugs.

Reporting consistent and satisfactory response to DMCT among a group of 32 acutely-ill pneumonia patients, Drs. C. James Duke, Robert F. Donohoe and Sol Katz of the District of Columbia and Veterans' Administration Hospitals in Washington, stated that their studies strongly support the published investigations of Dr. Finland. The Washington physicians regarded the 32 pneumonia patients as a "severe challenge to any antibiotic" and reported highly satisfactory therapeutic results from the new drug. Because of its great effectiveness in relatively small doses, they said, DMCT gives promise of overcoming the problem of stomach upset associated with large drug dosages in the treatment of pneumonia.

The cure of venereal diseases by small total doses of DMCT was regarded as "striking" and "noteworthy" by Drs. Milton Marmell and Aeron Prigot of New York's Harlem Hospital. They reported that for the cure of gonorrhea, the required total oral dose of the new drug is almost as small as the required injected dose of tetracycline. For tetracycline, the oral dose is usually twice the injected dose. The physi-

cians reported cures in all but two of sixty-two patients with gonorrhea, lymphogranuloma venereum and donovanosis. The two exceptions had reported new exposures to disease after their treatment.

Side effects of DMCT were found by most investigators to be infrequent and rarely to require discontinuance of therapy.

Two physicians from the Norristown, Pa. State Hospital reported that because of the new antibiotic's slow rate of excretion, it tends to accumulate in patients' blood over a normal five-day course of treatment. Drs. William P. Boger and John J. Gavin found that the germ-killing concentration of DMCT in the blood on the fifth day of therapy was twice as high as after the first day. They estimated that the drug will circulate in the body 72 to 96 hours after dosage is discontinued.

DMCT was found to be twice as active as tetracycline against six of a group of nine species of disease-causing bacteria isolated from infected patients. Drs. L. P. Garrod and Pamela Waterworth of St. Bartholomew's Hospital, London, reported that their study included 275 strains of the bacteria and in no case was the new drug less active than tretracycline. They also reported that a DMCT broth sterilized agar plate colonies of *Staphylococcus aureus*. A chlortetracycline broth of the same concentration failed to accomplish this after fifty hours and a regrowth of the bacteria occurred.

In the treatment of nine cases of brucellosis (undulent fever), Dr. Guillermo Chavez Max of Mexico City reported that all patients have been free of symptoms for two and one-half months following suppression of the disease by DMCT. The new drug has "the advantage over drugs of its same group," Dr. Chavez said, "of being useful at lesser doses and better tolerated." By the twentieth day of treatment, he said, no brucella, the infecting organisms, were demonstrable in the blood of any patient. All other signs of the illness disappeared by the tenth day.

Drs. Calvin M. Kunin, of the University of Virginia, Dr. Finland of Harvard, and Mr. A. C. Dornbush of Lederle Laboratories, reported tests of the behavior of the drug in healthy volunteers. These confirmed that DMCT remains active in the blood for much longer periods of time than tetracycline, chlortetracycline, or oxytetracycline. In another report, Drs. Sidney Ross, Jose Puig, and Edmund A. Zaremba of Children's Hospital, Washington, D. C., said that the concentrations of DMCT in the blood following single oral doses in children compared favorably with those given by other tetracyclines.

A team of Seattle clinicians said that the new antibiotic worked well among a group of fifty patients with acute respiratory or urinary tract infections, but that at higher dosages of the drug, some nausea and vomiting did result. They reported that most organisms isolated from these patients were more sensitive to DMCT than to other tetracyclines. The

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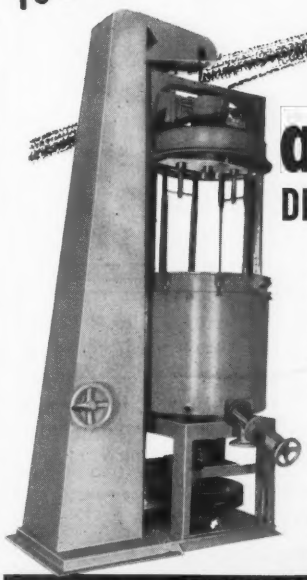

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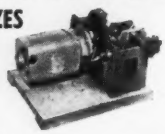

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study was conducted by Drs. D. M. Perry, G. A. Hall, and W. M. Kirby of the University of Washington.

Dr. Jorge Olarte from Children's Hospital, Mexico City, compared bacteria associated with cases of diarrhea in children at their hospital. DMCT was more active than tetracycline against 26 per cent of the strains in laboratory studies, but Dr. Olarte found that the differences were slight and apparently not significant.

Japanese physicians outlined results of a series of 309 cases of acute childhood infection. They concluded that DMCT produced results as good as or better than tetracycline at one-half the dosage required for the older drug. The group of investigators, as reported by Dr. Ryochi Fujii, found no side effects requiring withdrawal of the drug.

Eighty-five per cent of a group of patients suffering from boils and other skin conditions have responded to Declomycin.

The drug was described as "an excellent antibiotic for oral use" in treating pustular skin conditions by two New York University physicians. The prolonged activity of the drug in the blood attainable with low dosages, makes DMCT "particularly useful in the extended treatment of pustular acne vulgaris."

Among 45 acne patients treated by Drs. Norman B. Kanoff and Saul Blau for periods of from eight to sixteen weeks, thirty-eight showed excellent or good improvement. Half the acne patients showed some renewed pustular activity when DMCT was discontinued.

Nineteen of twenty-two patients with impetigo, boils and secondary skin infections responded well to the new drug. Sixteen of these were markedly improved in 48 to 72 hours and were clinically cured in seven days. They did not show any subsequent symptoms of dermatological infections.

In three patients with boils who failed to respond, the bacteria involved was a strain of staphylococcus highly resistant to tetracycline.

Six patients with other skin infections were better in one week and continued to improve over a six-week course of treatment. Four of these patients remained clear of further outbreaks.

Side effects during the long-term therapy were limited to two instances of nausea and two of diarrhea, which were completely and quickly reversible upon withdrawal of the drug, the investigators reported.

Aspartocin. Preliminary test tube studies of an experimental antibiotic have shown it to be active against forty-two streptococci and staphylococci bacteria resistant to penicillin or chlortetracycline. The bacteria were isolated from hospitalized patients.

Dr. E. J. Kirsch, A. C. Dornbush, and Dr. E. J. Backus of Lederle Laboratories Division, American Cyanamid Company, where the drug is under development, reported these results. The extensive studies

needed before administration to man have not yet been completed.

The investigators also described laboratory studies showing that staph and strep bacteria do not easily develop resistance to the antibiotic, known as aspartocin. Where erythromycin showed a steady and progressive loss of effectiveness against test organisms in these studies, the same organisms developed an early but low-grade resistance to aspartocin which increased only very gradually. The compound is effective against gram-positive organisms but not against gram-negatives.

According to another report by Lederle investigators, aspartocin has shown activity in mice against organisms resistant to tetracycline. Drs. G. S. Reddin and M. E. McCoy said that although the drug is two to three times as toxic as tetracycline in experimental animals, intravenous injections of aspartocin resulted in 100 per cent survival of fifty mice infected with *Staphylococcus Rose*. Only three of forty infected mice treated with similar doses of tetracycline survived. The antibiotic was inactive orally in these tests.

The bactericidal activity of aspartocin was reported to have been greatly enhanced in the laboratory by elimination of phosphates in the broth in which it was being studied, and by addition of calcium to the broth. In one broth used, the addition of calcium resulted in a 250-fold increase in the potency of the drug against *Staphylococcus Smith*. This may stem, the investigators said, from the removal of available phosphate by the calcium, combined with an as yet unknown direct effect of the calcium acting on the antibiotic and the pathogenic cell.

Aspartocin was originally developed at Lederle from an organism isolated from the soil, *Streptomyces griselus* var. *spiralis*. It derives its name from its high content of aspartic acid.

A. J. Shay, J. Adams, J. H. Martin, Dr. W. K. Hausmann, Dr. P. Shu, Dr. N. Bohanos, A. L. Jensen and Marjorie A. Darken, all of Lederle Laboratories, described in other papers the isolation and fermentation of the drug.

Coly-mycin. Two papers described a new antibiotic to be made available under the name Colymycin. These papers reported the drug to be effective against germs which cause such serious diseases as infectious diarrhea, and infections of the eye, ear and urinary tract.

Coly-mycin, whose generic name is colistin, was originally isolated by Japanese investigators. It is being tested and developed in the United States by Warner-Chilcott Laboratories.

One of the papers was by Drs. William W. Wright and Henry Welch of the U. S. Food and Drug Administration, and the other by a group headed by Dr. Benjamin S. Schwartz from the Warner-Lambert Research Institute.

Both papers confirmed that the new antibiotic was

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most effective against gram-negative organisms—those responsible for intestinal, urinary and other infections—such as coli-aerogenes, pseudomonas, salmonella, shigella organisms and the colon bacillus. Dr. Schwartz's group tested the antibiotic successfully against fifty-eight strains of bacteria. Resistance to Coly-mycin was induced only occasionally with difficulty in sensitive bacterial strains.

Both papers also agreed that Coly-mycin was virtually nontoxic, that when injected, it produced high blood levels quickly, and was quickly excreted in the urine. When taken by mouth, most of the drug concentrated in the intestinal tract, a factor of importance in the management of intestinal infections.

The new antibiotic will be available in two forms, Coly-mycin M, (sodium colistinmethanesulfonate), and Coly-mycin S, (colistin sulfate), for injection and oral administration, respectively.

Coly-mycin-S, has shown excellent results in the treatment of certain common forms of infectious diarrhea and other gastrointestinal illnesses in very young children, two groups of research scientists from hospitals in Chicago and Washington reported.

The reports were made by Drs. Joseph Greengard and Angel F. Aliseda of the Cook County Children's Hospital, Chicago, and Drs. Sydney Ross, Jose R. Puig, and Edmund A. Zaremba of the Research Foundation of the Children's Hospital, Washington, D. C.

The Chicago study included two groups totaling 128 infants, all one year of age or less and all suffering from serious infectious diarrheas. Seventy-eight of these cases received Coly-mycin-S by mouth, while the remainder received other antibiotics and served as a control group.

The Chicago doctors conclude that Coly-mycin-S "appears to be a safe and effective antibiotic for the therapy of acute diarrhea in infancy," observing that it is "well-tolerated by the young infant, and no deleterious side effects were observed."

They also add that there were several instances "in which infants were responding poorly to other broad-spectrum antibiotics and rapidly improved when oral colistin sulfate (Coly-mycin-S) was substituted."

The Washington physicians employed Coly-mycin-S in cases of gastro-enteritis occurring in the Children's Hospital over an eight-month period. These included 28 cases of dysentery caused by three different types of organisms.

They concluded that Coly-mycin-S was especially effective in gastro-enteritis resulting from the organism E. coli, believed to be the most common cause of severe diarrheas in infants and children. It also showed fair results against the less common salmonella enteritis.

Syncillin. Dr. C. A. Cronk and his associates at Syracuse University, studied the effects of Syncillin in 234 healthy adults and 146 patients suffering such common diseases as tonsillitis, gingivitis, middle ear

infections, pneumonia, gonorrhea, eye infections, and acute bronchitis.

Dr. E. M. E. Morigi, reporting on clinical tests in Philadelphia and Syracuse, said 210 healthy adults and 172 sick patients were involved in his series.

Of the combined group of 318 sick patients treated in both studies, 85 representative cases are dealt with in detail; 76 were reported cured, six improved and three were listed as failures.

Evidence of improved levels of the drug in the blood stream was determined largely with the 444 healthy persons who received varying doses of Syncillin, and were tested later for the amount which entered the blood by absorption through the gastrointestinal tract.

The studies involved 762 persons. Only one possible case of allergic reaction, a skin rash, was noted.

The studies reveal that Syncillin is twice as effective in achieving high concentrations in the blood serum as other penicillins.

Dr. Morigi and group stated the following with respect to Syncillin's effectiveness against organisms which may be resistant to other penicillins:

"The clinical results indicate that this new penicillin is effective in the treatment of infections due to Staphylococcus aureus and hemolytic streptococci."

"The minimum inhibitory concentration values on 104 strains of Staphylococcus aureus obtained in a comparative study with three other penicillins denote that potassium penicillin-152 inhibits a greater number of penicillin G resistant Staphylococcus aureus organisms that other penicillins, namely, penicillins O and V."

Humatin. World-wide field studies of a new oral antibiotic showed it to be "highly effective" in the treatment of amebiasis.

Dr. Kenneth O. Courtney, clinical investigator for Parke, Davis & Company, told of the effectiveness of the new antibiotic, Humatin, which is not yet commercially available.

The global studies with Humatin involved more than 1,000 patients. Because of the almost total lack of absorption on oral administration, no side effects were reported by physicians who studied the drug. While the average course of treatment was five days, investigators reported "marked relief in all symptomatic patients beginning as early as the second or third day."

In the amebiasis studies, the severity of the disease ranged from the chronic cyst passer, through the moderately acute to the very acute type of case. Patients ranged from well-nourished in the higher socio-economic level to the anemic, poorly-nourished patients of low socio-economic level.

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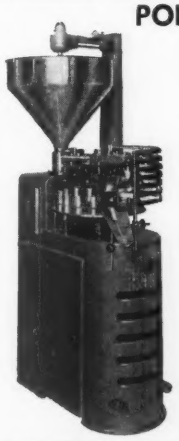

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